College of Liberal Arts and Sciences
Scholarly publications from SCOPUS – month ending 17Feb2016

BIOLOGICAL SCIENCE

Holowatyj, A., Yang, Z. Q., & Pile, L. A. (2015). Histone lysine demethylases in drosophila melanogaster. *Fly, 9*(1), 36-44.
http://proxy.lib.wayne.edu/login?url=http://www.scopus.com/inward/record.url?eid=2-s2.0-84954216269&partnerID=40&md5=2b5928f28ebec1b1f3e477d1382ffc15.
Epigenetic regulation of chromatin structure is a fundamental process for eukaryotes. Regulators include DNA methylation, microRNAs and chromatin modifications. Within the chromatin modifiers, one class of enzymes that can functionally bind and modify chromatin, through the removal of methyl marks, is the histone lysine demethylases. Here, we summarize the current findings of the 13 known histone lysine demethylases in Drosophila melanogaster, and discuss the critical role of these histone-modifying enzymes in the maintenance of genomic functions. Additionally, as histone demethylase dysregulation has been identified in cancer, we discuss the advantages for using Drosophila as a model system to study tumorigenesis. © Andreana Holowatyj, Zeng-Quan Yang, and Lori A Pile.

Liu, M., Barnes, V. L., & Pile, L. A. (2016). Disruption of methionine metabolism in Drosophila melanogaster impacts histone methylation and results in loss of viability. *G3: Genes, Genomes, Genetics, 6*(1), 121-132.
http://proxy.lib.wayne.edu/login?url=http://www.scopus.com/inward/record.url?eid=2-s2.0-84953715045&partnerID=40&md5=03009945f771c338f006bf30f93d7942.
Histone methylation levels, which are determined by the action of both histone demethylases and methyltransferases, impact multiple biological processes by affecting gene expression activity. Methionine metabolism generates the major methyl donor S-adenosylmethionine (SAM) for histone methylation. The functions of methionine metabolic enzymes in regulating biological processes as well as the interaction between the methionine pathway and histone methylation, however, are still not fully understood. Here, we report that reduced levels of some enzymes involved in methionine metabolism and histone demethylases lead to lethality as well as wing development and cell proliferation defects in Drosophila melanogaster. Additionally, disruption of methionine metabolism can directly affect histone methylation levels. Reduction of little imaginal discs (LID) histone demethylase, but not lysine-specific demethylase 2 (KDM2) demethylase, is able to counter the effects on histone methylation due to reduction of SAM synthetase (SAM-S). Taken together, these results reveal an essential role of key enzymes that control methionine metabolism and histone methylation. Additionally, these findings are an indication of a strong connection between metabolism and epigenetics. © 2016 Liu et al.

Medved, V., Marden, J. H., Fescemyer, H. W., Der, J. P., Liu, J., Mahfooz, N., & Popadić, A. (2015). Origin and diversification of wings: Insights from a neopteran insect. *Proceedings of the National Academy of Sciences of the United States of America, 112*(52), 15946-15951. http://proxy.lib.wayne.edu/login?url=http://www.scopus.com/inward/record.url?eid=2-s2.0-84952673478&partnerID=40&md5=2bf4e7436af01314877e89c0ab5702d1.

Winged insects underwent an unparalleled evolutionary radiation, but mechanisms underlying the origin and diversification of wings in basal insects are sparsely known compared with more derived holometabolous insects. In the neopteran species Oncopeltus fasciatus, we manipulated wing specification genes and used RNA-seq to obtain both functional and genomic perspectives. Combined with previous studies, our results suggest the following key steps in wing origin and diversification. First, a set of dorsally derived outgrowths evolved along a number of body segments including the first thoracic segment (T1). Homeotic genes were subsequently co-opted to suppress growth of some dorsal flaps in the thorax and abdomen. In T1 this suppression was accomplished by Sex combs reduced, that when experimentally removed, results in an ectopic T1 flap similar to prothoracic winglets present in fossil hemipteroids and other early insects. Global geneexpression differences in ectopic T1 vs. T2/T3 wings suggest that the transition from flaps to wings required ventrally originating cells, homologous with those in ancestral arthropod gill flaps/epipods, to migrate dorsally and fuse with the dorsal flap tissue thereby bringing new functional gene networks; these presumably enabled the T2/T3 wing's increased size and functionality. Third, "fused" wings became both the wing blade and surrounding regions of the dorsal thorax cuticle, providing tissue for subsequent modifications including wing folding and the fit of folded wings. Finally, Ultrabithorax was co-opted to uncouple the morphology of T2 and T3 wings and to act as a general modifier of hindwings, which in turn governed the subsequent diversification of lineage-specific wing forms.

Nautiyal, J., Purvis, K., & Majumdar, A. P. N. (2015). Aging: An etiological factor in the development of intestinal tumorigenesis *Intestinal Tumorigenesis: Mechanisms of Development & Progression* (pp. 287-308).
http://proxy.lib.wayne.edu/login?url=http://www.scopus.com/inward/record.url?eid=2-s2.0-84955691764&partnerID=40&md5=58c07250f4e322921aad371f75239847.
Sporadic colorectal cancer (CRC) occurs in people who have essentially no family history of the disease. Many probable reasons have been suggested for the age-related rise in sporadic CRC, including altered carcinogen metabolism and the cumulative effects of long-term exposure to cancer-causing agents. In this review article we have discussed the current evidence that implicates aging as an etiological factor in the initiation and progression of CRCs, with particular reference to the involvement of colon cancer stem/stem-like cells (CSCs/CSLCs), a small sub-population of self-renewing tumor cells, in these processes. In addition, the role of EGFR and as well as miRNAs, specifically microRNA 21 in regulating CSCs/CSLCs in the colon during aging is discussed.

Raghunayakula, S., Subramonian, D., Dasso, M., Kumar, R., & Zhang, X. D. (2015). Molecular characterization and functional analysis of annulate lamellae pore complexes in nuclear transport in mammalian cells. *PLoS ONE, 10*(12).
http://proxy.lib.wayne.edu/login?url=http://www.scopus.com/inward/record.url?eid=2-s2.0-84955615962&partnerID=40&md5=8cd4bbd3a172c5f20d9a8d3b9316b4a0.
Annulate lamellae are cytoplasmic organelles containing stacked sheets of membranes embedded with pore complexes. These cytoplasmic pore complexes at annulate lamellae are

morphologically similar to nuclear pore complexes at the nuclear envelope. Although annulate lamellae has been observed in nearly all types of cells, their biological functions are still largely unknown. Here we show that SUMO1-modification of the Ran GTPaseactivating protein RanGAP1 not only target RanGAP1 to its known sites at nuclear pore complexes but also to annulate lamellae pore complexes through interactions with the Ranbinding protein RanBP2 and the SUMO-conjugating enzyme Ubc9 in mammalian cells. Furthermore, upregulation of annulate lamellae, which decreases the number of nuclear pore complexes and concurrently increases that of annulate lamellae pore complexes, causes a redistribution of nuclear transport receptors including importin α/β and the exportin CRM1 from nuclear pore complexes to annulate lamellae pore complexes and also reduces the rates of nuclear import and export. Moreover, our results reveal that importin α/β-mediated import complexes initially accumulate at annulate lamellae pore complexes upon the activation of nuclear import and subsequently disassociate for nuclear import through nuclear pore complexes in cells with upregulation of annulate lamellae. Lastly, CRM1-mediated export complexes are concentrated at both nuclear pore complexes and annulate lamellae pore complexes when the disassembly of these export complexes is inhibited by transient expression of a Ran GTPase mutant arrested in its GTP-bound form, suggesting that Ran- GAP1/RanBP2-activated RanGTP hydrolysis at these pore complexes is required for the dissociation of the export complexes. Hence, our findings provide a foundation for further investigation of how upregulation of annulate lamellae decreases the rates of nuclear transport and also for elucidation of the biological significance of the interaction between annulate lamellae pore complexes and nuclear transport complexes in mammalian cells.

Schrader, J. M., & Shapiro, L. (2015). Synchronization of Caulobacter crescentus for investigation of the bacterial cell cycle. *Journal of visualized experiments : JoVE*(98). http://proxy.lib.wayne.edu/login?url=http://www.scopus.com/inward/record.url?eid=2-s2.0-84952781546&partnerID=40&md5=b62ba0e0c75c94b2821892014d71fa8a.

The cell cycle is important for growth, genome replication, and development in all cells. In bacteria, studies of the cell cycle have focused largely on unsynchronized cells making it difficult to order the temporal events required for cell cycle progression, genome replication, and division. Caulobacter crescentus provides an excellent model system for the bacterial cell cycle whereby cells can be rapidly synchronized in a G0 state by density centrifugation. Cell cycle synchronization experiments have been used to establish the molecular events governing chromosome replication and segregation, to map a genetic regulatory network controlling cell cycle progression, and to identify the establishment of polar signaling complexes required for asymmetric cell division. Here we provide a detailed protocol for the rapid synchronization of Caulobacter NA1000 cells. Synchronization can be performed in a large-scale format for gene expression profiling and western blot assays, as well as a small-scale format for microscopy or FACS assays. The rapid synchronizability and high cell yields of Caulobacter make this organism a powerful model system for studies of the bacterial cell cycle.

CHEMISTRY

Bohé, L., & Crich, D. (2016). Carbohydrate reactivity: Glycosyl cations out on parole. *Nature Chemistry, 8*(2), 99-100.
http://proxy.lib.wayne.edu/login?url=http://www.scopus.com/inward/record.url?eid=2-s2.0-84955515529&partnerID=40&md5=2bfe5bd38a5d8004ccacf0e89f56adfb.

Dharuman, S., Wang, Y., & Crich, D. (2016). Alternative synthesis and antibacterial evaluation of 1,5-dideoxy-1,5-imino-l-rhamnitol. *Carbohydrate Research, 419*, 29-32.
http://proxy.lib.wayne.edu/login?url=http://www.scopus.com/inward/record.url?eid=2-s2.0-84952705492&partnerID=40&md5=39b3f14946766065b6911e2c3d7a4f16.
A convenient synthesis is described of 5-azido-5-deoxy-2,3-O-isopropylidene-l-rhamnofuranose from l-rhamnose in seven steps and 17% overall yield. A key feature of the synthesis is the selective oxidation of the secondary alcohol in 2,3-O-isopropylidene-l-rhamnofuranose in the presence of the hemiacetal to give the corresponding ketone in good yield using the Parikh-Doering reagent. 5-Azido-5-deoxy-2,3-O-isopropylidene-l-rhamnofuranose is then converted by a literature protocol to 1,5-dideoxy-1,5-imino-l-rhamnitol, which was found to have no significant antimicrobial activity against Pseudomonas aeruginosa, methicillin-resistant Staphylococcus aureus, and Escherichia coli.

Dissanayake, K. T., Mendoza, L. M., Martin, P. D., Suescun, L., & Rabuffetti, F. A. (2016). Open-Framework Structures of Anhydrous Sr(CF3COO)2 and Ba(CF3COO)2. *Inorganic Chemistry, 55*(1), 170-176.
http://proxy.lib.wayne.edu/login?url=http://www.scopus.com/inward/record.url?eid=2-s2.0-84953383766&partnerID=40&md5=98dcabdf54275cec3d8e9cde209a072f.
Anhydrous Sr(CF3COO)2 and Ba(CF3COO)2 open-framework structures featuring three-dimensional connectivity of metal-oxygen polyhedra were crystallized from a mixture of water and CF3COOH. Crystallization was induced via evaporation of the solvent mixture under a dry nitrogen flow. This approach differs from that routinely employed for crystallization of metal trifluoroacetates, which achieves solvent evaporation by heating under air and yields hydrated salts. Thermogravimetric and differential thermal analysis as well as single-crystal and synchrotron powder X-ray diffraction were employed to characterize the alkaline-earth trifluoroacetate products. Neither thermal analysis nor single-crystal X-ray diffraction detected the presence of crystallization water molecules, demonstrating these trifluoroacetates can be obtained in anhydrous form. Single-crystal X-ray diffraction studies showed that Sr(CF3COO)2 and Ba(CF3COO)2 are isostructural and crystallize in the rhombohedral $R\bar{3}$ space group. Both compounds belong to the class of organic-inorganic extended hybrids and exhibit an open-framework structural motif with three-dimensional connectivity of the metal-oxygen polyhedra and one-dimensional channels along the c axis. The channels are decorated with the trifluoromethyl groups of the trifluoroacetate ligands, and their average (minimum) diameters are ∼3.75 (2.60) and 3.45 (2.25) Å for Sr(CF3COO)2 and Ba(CF3COO)2, respectively. This size

range is comparable to the kinetic diameter of small molecules such as hydrogen (2.3 Å). Chemical substitution of barium for strontium affects not only the diameter of the channels but also the spatial arrangement of the trifluoromethyl groups within the channels and the coordination environment of the metal atoms. The different coordination requirements of the strontium and barium atoms are accommodated through the displacement of one of the two chemically distinct trifluoroacetate ligands relative to the metal center. © 2015 American Chemical Society.

Ekanger, L. A., Polin, L. A., Shen, Y., Haacke, E. M., Martin, P. D., & Allen, M. J. (2015). A EuII-Containing Cryptate as a Redox Sensor in Magnetic Resonance Imaging of Living Tissue. *Angewandte Chemie - International Edition, 54*(48), 14398-14401.
http://proxy.lib.wayne.edu/login?url=http://www.scopus.com/inward/record.url?eid=2-s2.0-84954348691&partnerID=40&md5=d6cfe6725fb4bc5a14efda25e8610c88.
The EuII ion rivals GdIII in its ability to enhance contrast in magnetic resonance imaging. However, all reported EuII-based complexes have been studied in vitro largely because the tendency of EuII to oxidize to EuIII has been viewed as a major obstacle to in vivo imaging. Herein, we present solid- and solution-phase characterization of a EuII-containing cryptate and the first in vivo use of EuII to provide contrast enhancement. The results indicate that between one and two water molecules are coordinated to the EuII core upon dissolution. We also demonstrate that EuII-based contrast enhancement can be observed for hours in a mouse. © 2015 Wiley-VCH Verlag GmbH & Co. KGaA, Weinheim.

Gamage, N. D. H., Stiasny, B., Stierstorfer, J., Martin, P. D., Klapötke, T. M., & Winter, C. H. (2016). Highly Energetic, Low Sensitivity Aromatic Peroxy Acids. *Chemistry - A European Journal*. http://proxy.lib.wayne.edu/login?url=http://www.scopus.com/inward/record.url?eid=2-s2.0-84953455440&partnerID=40&md5=9352f8d80c8e415f6483e6297b976aa5.
The synthesis, structure, and energetic materials properties of a series of aromatic peroxy acid compounds are described. Benzene-1,3,5-tris(carboperoxoic) acid is a highly sensitive primary energetic material, with impact and friction sensitivities similar to those of triacetone triperoxide. By contrast, benzene-1,4-bis(carboperoxoic) acid, 4-nitrobenzoperoxoic acid, and 3,5-dinitrobenzoperoxoic acid are much less sensitive, with impact and friction sensitivities close to those of the secondary energetic material 2,4,6-trinitrotoluene. Additionally, the calculated detonation velocities of 3,5-dinitrobenzoperoxoic acid and 2,4,6-trinitrobenzoperoxoic acid exceed that of 2,4,6-trinitrotoluene. The solid-state structure of 3,5-dinitrobenzoperoxoic acid contains intermolecular O-H...O hydrogen bonds and numerous N...O, C...O, and O...O close contacts. These attractive lattice interactions may account for the less sensitive nature of 3,5-dinitrobenzoperoxoic acid. © 2015 WILEY-VCH Verlag GmbH & Co. KGaA, Weinheim.

Li, A., White, J. K., Arora, K., Herroon, M. K., Martin, P. D., Schlegel, H. B., . . . Kodanko, J. J. (2016). Selective Release of Aromatic Heterocycles from Ruthenium Tris(2-pyridylmethyl)amine with Visible Light. *Inorganic Chemistry, 55*(1), 10-12.
http://proxy.lib.wayne.edu/login?url=http://www.scopus.com/inward/record.url?eid=2-s2.0-

84953375746&partnerID=40&md5=2e90b5e62bd20d1dc6726d653aff4faf.
Three complexes of the general formula [Ru(TPA)L2](PF6)2 [TPA = tris(2-pyridylmethyl)amine], where L = pyridine (1), nicotinamide (2), and imidazole (3), were prepared and characterized spectroscopically. X-ray crystallographic data were obtained for 1 and 3. Complexes 1-3 show strong absorption in the visible region and selective release of heterocycles upon irradiation with visible light. Time-dependent density functional theory calculations are consistent with the presence of singlet metal-to-ligand charge-transfer bands in the visible region in 1-3. Caged heterocycles 1-3 are highly stable in solution in the dark, including in cell growth media. Cell viability data show no signs of toxicity of 1-3 against PC-3 cells at concentrations up to 100 μM under light and dark conditions, consistent with Ru(TPA) acting as a nontoxic and effective photocaging group for aromatic heterocycles. © 2015 American Chemical Society.

Loftus, L. M., White, J. K., Albani, B. A., Kohler, L., Kodanko, J. J., Thummel, R. P., . . . Turro, C. (2016). New RuII Complex for Dual Activity: Photoinduced Ligand Release and 1O2 Production. *Chemistry - A European Journal*.
http://proxy.lib.wayne.edu/login?url=http://www.scopus.com/inward/record.url?eid=2-s2.0-84954469557&partnerID=40&md5=b02d11d6924a8b1729afb987c5490377.
The new complex [Ru(pydppn)(biq)(py)]2+ (1) undergoes both py photodissociation in CH3CN with Φ500=0.0070(4) and 1O2 production with ΦΔ=0.75(7) in CH3OH from a long-lived 3ππ* state centered on the pydppn ligand (pydppn=3-(pyrid-2-yl)benzo[i]dipyrido[3,2-a:2′,3′-c]phenazine; biq = 2,2′-biquinoline; py=pyridine). This represents an order of magnitude decrease in the Φ500 compared to the previously reported model compound [Ru(tpy)(biq)(py)]2+ (3) (tpy=2,2′:6′,2′′-terpyridine) that undergoes only ligand exchange. The effect on the quantum yields by the addition of a second deactivation pathway through the low-lying 3ππ* state necessary for dual reactivity was investigated using ultrafast and nanosecond transient absorption spectroscopy, revealing a significantly shorter 3MLCT lifetime in 1 relative to that of the model complex 3. Due to the structural similarities between the two compounds, the lower values of Φ500 and ΦΔ compared to that of [Ru(pydppn)(bpy)(py)]2+ (2) (bpy=2,2′-bipyridine) are attributed to a competitive excited state population between the 3LF states involved in ligand dissociation and the long-lived 3ππ* state in 1. Complex 1 represents a model compound for dual activity that may be applied to photochemotherapy. © 2016 WILEY-VCH Verlag GmbH & Co. KGaA, Weinheim.

Ramalho, S. D., Sharma, R., White, J. K., Aggarwal, N., Chalasani, A., Sameni, M., . . . Sloane, B. F. (2015). Imaging sites of inhibition of proteolysis in pathomimetic human breast cancer cultures by light-activated ruthenium compound. *PLoS ONE, 10*(11).
http://proxy.lib.wayne.edu/login?url=http://www.scopus.com/inward/record.url?eid=2-s2.0-84955444315&partnerID=40&md5=dad0b410b09cddc56e05c45248ebc97c.
The cysteine protease cathepsin B has been causally linked to progression and metastasis of breast cancers. We demonstrate inhibition by a dipeptidyl nitrile inhibitor (compound 1) of cathepsin B activity and also of pericellular degradation of dye-quenched collagen IV by living breast cancer cells. To image, localize and quantify collagen IV degradation in real-time we used

3D pathomimetic breast cancer models designed to mimic the in vivo microenvironment of breast cancers. We further report the synthesis and characterization of a caged version of compound 1, [Ru(bpy)2(1)2](BF4)2 (compound 2), which can be photoactivated with visible light. Upon light activation, compound 2, like compound 1, inhibited cathepsin B activity and pericellular collagen IV degradation by the 3D pathomimetic models of living breast cancer cells, without causing toxicity. We suggest that caged inhibitor 2 is a prototype for cathepsin B inhibitors that can control both the site and timing of inhibition in cancer.

Wen, P., & Crich, D. (2015). Absence of Stereodirecting Participation by 2-O-Alkoxycarbonylmethyl Ethers in 4,6-O-Benzylidene-Directed Mannosylation. *Journal of Organic Chemistry, 80*(24), 12300-12310.
http://proxy.lib.wayne.edu/login?url=http://www.scopus.com/inward/record.url?eid=2-s2.0-84952837660&partnerID=40&md5=bd0a01d3a681df3c8aac8ee67d2e04ba.
The preparation of a series of mannopyranosyl donors carrying 2-O-(2-oxoalkyl) ethers and their use in glycosylation reactions are described. The formation of cyclic products with the simple 2-O-phenacyl ether and with the 2-O-(t-butoxycarbonylmethyl) ether establishes the stereoelectronic feasibility of participation in such systems. The high β-selectivities observed with the bis-trifluoromethyl phenacyl ether indicate that participation can be suppressed through the introduction of electron-withdrawing substituents. The high β-selectivities and absence of cyclic products observed with the 2-O-(methoxycarbonylmethyl) ether exclude the effective participation of esters through six-membered cyclic intermediates in this series. The results are discussed in terms of the conformation of cyclic dioxenium ions (E,E-, E,Z-, or Z,Z-) and in the context of "neighboring group" participation by nonvicinal esters in glycosylation. Methods for the deprotection of the 2-O-phenacyl and 2-O-(methoxycarbonylmethyl) ethers are described.

Wu, R. R., Chen, Y., & Rodgers, M. T. (2016). Mechanisms and energetics for N-glycosidic bond cleavage of protonated 2′-deoxyguanosine and guanosine. *Physical Chemistry Chemical Physics, 18*(4), 2968-2980.
http://proxy.lib.wayne.edu/login?url=http://www.scopus.com/inward/record.url?eid=2-s2.0-84955268205&partnerID=40&md5=10b00425acb11cf43588f37ff703d432.
Experimental and theoretical investigations suggest that hydrolysis of N-glycosidic bonds generally involves a concerted SN2 or a stepwise SN1 mechanism. While theoretical investigations have provided estimates for the intrinsic activation energies associated with N-glycosidic bond cleavage reactions, experimental measurements to validate the theoretical studies remain elusive. Here we report experimental investigations for N-glycosidic bond cleavage of the protonated guanine nucleosides, [dGuo+H]+ and [Guo+H]+, using threshold collision-induced dissociation (TCID) techniques. Two major dissociation pathways involving N-glycosidic bond cleavage, resulting in production of protonated guanine or the elimination of

neutral guanine are observed in competition for both [dGuo+H]+ and [Guo+H]+. The detailed mechanistic pathways for the N-glycosidic bond cleavage reactions observed are mapped via electronic structure calculations. Excellent agreement between the measured and B3LYP calculated activation energies and reaction enthalpies for N-glycosidic bond cleavage of [dGuo+H]+ and [Guo+H]+ in the gas phase is found indicating that these dissociation pathways involve stepwise E1 mechanisms in analogy to the SN1 mechanisms that occur in the condensed phase. In contrast, MP2 is found to significantly overestimate the activation energies and slightly overestimate the reaction enthalpies. The 2′-hydroxyl substituent is found to stabilize the N-glycosidic bond such that [Guo+H]+ requires ~25 kJ mol-1 more than [dGuo+H]+ to activate the glycosidic bond. © the Owner Societies 2016.

CLASSICAL AND MODERN LANGUAGES, LITERATURES, AND CULTURES

Figueroa, V. (2015). From "sunken city" to "illegal city": Presence and transformation of the poetry of Luis Pales Matos in Boat People by Mayra Santos Febres. *Hispanofila*(173), 395-416.
http://proxy.lib.wayne.edu/login?url=http://www.scopus.com/inward/record.url?eid=2-s2.0-84955313546&partnerID=40&md5=fd5ae2197f8c6eb1233d77f69e5d271b.

CRIMINAL JUSTICE

Larson, M., Sweeten, G., & Piquero, A. R. (2016). With or Without You? Contextualizing the Impact of Romantic Relationship Breakup on Crime Among Serious Adolescent Offenders. *Journal of Youth and Adolescence, 45*(1), 54-72.
http://proxy.lib.wayne.edu/login?url=http://www.scopus.com/inward/record.url?eid=2-s2.0-84952715585&partnerID=40&md5=3e2d7c0b4a9d728363ab5dba83319b74.
The decline and delay of marriage has prolonged adolescence and the transition to adulthood, and consequently fostered greater romantic relationship fluidity during a stage of the life course that is pivotal for both development and offending. Yet, despite a growing literature of the consequences of romantic relationships breakup, little is known about its connection with crime, especially among youth enmeshed in the criminal justice system. This article addresses this gap by examining the effects of relationship breakup on crime among justice-involved youth—a key policy-relevant group. We refer to data from the Pathways to Desistance Study, a longitudinal study of 1354 (14 % female) adjudicated youth from the juvenile and adult court systems in Phoenix and Philadelphia, to assess the nature and complexity of this association. In general, our results support prior evidence of breakup's criminogenic influence. Specifically, they suggest that relationship breakup's effect on crime is particularly acute among this at-risk sample, contingent upon post-breakup relationship transitions, and more pronounced for relationships that involve cohabitation. Our results also extend prior work by demonstrating that breakup is attenuated by changes in psychosocial characteristics and peer associations/exposure. We close

with a discussion of our findings, their policy implications, and what they mean for research on relationships and crime among serious adolescent offenders moving forward. © 2015, Springer Science+Business Media New York.

Lin, K., Sun, I. Y., Wu, Y., & Liu, J. (2016). College Students' Attitudes Toward Intimate Partner Violence: a Comparative Study of China and the U.S. *Journal of Family Violence, 31*(2), 179-189.
http://proxy.lib.wayne.edu/login?url=http://www.scopus.com/inward/record.url?eid=2-s2.0-84955174953&partnerID=40&md5=076ea5a928e57b42416496ac726f3416.
Although attitudes toward intimate partner violence (IPV) have been the subject of many studies, little research has been conducted to comparatively assess public definitions of IPV in Western and non-Western countries. Drawing upon survey data collected from approximately 500 Chinese and American college students, this study compared and contrasted Chinese and American college students in their beliefs about what constitute IPV. Chinese students were found to be less likely to define abusive acts as IPV than their U.S. counterparts. Gender-role attitudes, such as beliefs of male dominance and IPV as crime, were among the most prominent predictors of students' definitions of IPV. Chinese and American college students' attitudes differed not only in what was defined as IPV, but also in what were the factors that shaped such attitudes. Directions for future research and policy were discussed. © 2015, Springer Science+Business Media New York.

GEOLOGY

Baskaran, M., Novell, T., Nash, K., Ruberg, S. A., Johengen, T., Hawley, N., . . . Biddanda, B. A. (2016). Tracing the Seepage of Subsurface Sinkhole Vent Waters into Lake Huron Using Radium and Stable Isotopes of Oxygen and Hydrogen. *Aquatic Geochemistry*, 1-26.
http://proxy.lib.wayne.edu/login?url=http://www.scopus.com/inward/record.url?eid=2-s2.0-84954327857&partnerID=40&md5=b114c5068e04959bd9a95eaf325886c2.
Exchange of water between groundwater and surface water could alter water quality of the surface waters and thereby impact its ecosystem. Discharges of anoxic groundwater, with high concentrations of sulfate and chloride and low concentrations of nitrate and oxygen, from three sinkhole vents (El Cajon, Middle Island and Isolated) in Lake Huron have been recently documented. In this investigation, we collected and analyzed a suite of water samples from these three sinkhole vents and lake water samples from Lake Huron for Ra, radon-222, stable isotopes of oxygen and hydrogen, and other ancillary parameters. These measurements are among the first of their kind in this unique environment. The activities of Ra are found to be one to two orders of magnitude higher than that of the lake water. Isotopic signatures of some of the bottom lake water samples indicate evidences for micro-seeps at distances farther from these three vents. A plot of δD versus δ18O indicates that there are deviations from the Global Meteoric Line that can be attributed to mixing of different water masses and/or due to some subsurface chemical reactions. Using the Ra isotopic ratios, we estimated the transit times of the

vent waters from the bottom to the top of the vent (i.e., sediment–water interface) to be 4–37 days. More systematic studies on the distribution of the radioactive and stable isotope studies are needed to evaluate the prevalence of micro-seeps in Lake Huron and other Great Lakes system. © 2016 Springer Science+Business Media Dordrecht

Howard, J. L. (2015). Glaciolacustrine history of the Huron-Erie lowland in the southeastern Great Lakes region (USA) revisited. *Journal of Great Lakes Research, 41*(4), 965-972.
http://proxy.lib.wayne.edu/login?url=http://www.scopus.com/inward/record.url?eid=2-s2.0-84955409848&partnerID=40&md5=b9637dbb85bb34d472a9f0d1780248a9.
The glaciolacustrine history of the Huron-Erie lowland is reinterpreted using a closed basin model (CBM), based on ground surveys, LiDAR imagery, and digital elevation mapping (DEM). According to the CBM, paleolakes Utica, St. Clair, and Rouge were formed about 13,813. cal. yr BP in closed depressions as the level of glacial Lake Elkton dropped below that of bounding morainal swells. The CBM explains why no physical connections could be established previously between paleolakes Algonquin and St. Clair, or between paleolakes St. Clair and Rouge. The CBM obviates the need for a spillway at Port Huron during the time of early Lake Algonquin. The Port Huron spillway is reinterpreted as having first formed about 5,728. cal. yr BP simply as a consequence of early Holocene glacial rebound, southward tilting of the Lake Huron basin, and rising water level during the Nipissing transgression. LiDAR and DEM maps suggest that spillway development in the Port Huron moraine caused catastrophic flooding during initial formation of the St. Clair River channel. Channeled scablands-like topography in the form of braided scour channels, streamlined erosional residuals, and boulder lag deposits downriver from Detroit suggest that the Detroit River may have formed by outburst flooding as the Detroit moraine was breached by the rising water level of paleolake St. Clair. © 2015 International Association for Great Lakes Research.

Wang, J., Du, J., Baskaran, M., & Zhang, J. (2016). Mobile mud dynamics in the East China Sea elucidated using 210Pb, 137Cs, 7Be, and 234Th as tracers. *Journal of Geophysical Research: Oceans*.
http://proxy.lib.wayne.edu/login?url=http://www.scopus.com/inward/record.url?eid=2-s2.0-84954286735&partnerID=40&md5=c71f89e16e5a9a540c3e97ab58492c98.
"Mobile mud" (MM), which has fine grain size distribution (>90% clay+silt, and <5% sand) and high porosity (≥0.50), plays an important role in the biogeochemical cycles in the estuarine areas and the inshore shelf. A suite of MM samples from the coastal area of the East China Sea (ECS) was collected in spring and summer of 2011 to observe their spatial and temporal distribution, grain size, and radionuclides concentrations. The MM thickness ranged from 0.5 to 11 cm (average: 2.2 cm (May) and 3.9 cm (August)). The thick mud layer is mainly distributed along the coast, with an area of 2.2 × 104 km2 in May and 1.5 × 104 km2 in August, with corresponding masses of 8.8 × 108 and 7.8 × 108 t, respectively. The estimated masses of MM are considerably larger than the annual sediment discharge mass of the Changjiang River. The distribution of 137Cs inventories in MM indicates that 137Cs can be effectively utilized as a

transport tracer of MM in the river-dominated estuaries and coastal areas. The higher inventories of 7Be in MM in the river mouth in spring are attributed to higher depositional flux and higher sediment discharge. The ratio of the MM inventory of 234Thex/production in the overlying water column of >2.5 in south inshore indicates that the sediment focusing resulted in the increased mass flux. The residence time of MM is estimated as 3-6 years both by mass balance of MM and 210Pbex in MM. © 2015. American Geophysical Union.

LABOR STUDIES

Masters, M. F., Albright, R., & Gibney, R., Jr. (2015). Is There a Future for Labor-Management Cooperation? *Conflict Resolution Quarterly, 33*, S95-S99.
http://proxy.lib.wayne.edu/login?url=http://www.scopus.com/inward/record.url?eid=2-s2.0-84954494208&partnerID=40&md5=eff54521416a3ba8e81712bf967e7274.
Christina Merchant dedicated her working life to promoting conflict management and labor-management cooperation. Unfortunately, the environment today does not seem hospitable to such cooperation. A massive assault is being waged against unions and collective bargaining, which begs the question of whether cooperation has a future. At the grassroots level, there is clearly a need for collaboration, where the parties can make a real difference. © 2015 Wiley Periodicals, Inc.

MATHEMATICS

Chen, L., Lu, G., & Luo, X. (2016). Boundedness of multi-parameter Fourier multiplier operators on Triebel-Lizorkin and Besov-Lipschitz spaces. *Nonlinear Analysis, Theory, Methods and Applications, 134*, 55-69.
http://proxy.lib.wayne.edu/login?url=http://www.scopus.com/inward/record.url?eid=2-s2.0-84955477503&partnerID=40&md5=a47ab357741aa593d357b3f4c20c7ff5.
The main purpose of this paper is three-fold. First, we prove that under the limited smoothness conditions, multi-parameter Fourier multiplier operators are bounded on multi-parameter Triebel-Lizorkin and Besov-Lipschitz spaces by the Littlewood-Paley decomposition and the strong maximal operator. Second, we offer a different and more direct method to deal with the boundedness instead of transforming Fourier multiplier operators into multi-parameter Calderón-Zygmund operators. Third, we also prove the boundedness of multi-parameter Fourier multiplier operators on weighted multi-parameter Triebel-Lizorkin and Besov-Lipschitz spaces when the Fourier multiplier is only assumed with limited smoothness. © 2016 Elsevier Ltd. All rights reserved.

Ding, W., Lu, G., & Zhu, Y. (2016). Multi-parameter Triebel-Lizorkin spaces associated with the composition of two singular integrals and their atomic decomposition. *Forum Mathematicum, 28*(1), 25-42.

http://proxy.lib.wayne.edu/login?url=http://www.scopus.com/inward/record.url?eid=2-s2.0-84954236488&partnerID=40&md5=18c0f0cacfe3436eb1246df53437533f.
Atomic decomposition plays an important role in establishing the boundedness of operators on function spaces. Let 0 < p, q < ∞ and α = (α1, α 2) ε ℝ2. In this paper, we introduce multi-parameter Triebel-Lizorkin spaces Fα,q p (ℝm) associated with different homogeneities arising from the composition of two singular integral operators whose weak (1, 1) boundedness was first studied by Phong and Stein [32]. We then establish its atomic decomposition which is substantially different from that for the classical one-parameter Triebel-Lizorkin spaces. As an application of our atomic decomposition, we obtain the necessary and sufficient conditions for the boundedness of an operator T on the multi-parameter Triebel-Lizorkin type spaces. In the special case of α1 = α2= 0, q = 2 and 0 < p ≤ 1, our spaces Fα,q p (ℝm) coincide with the Hardy spaces Hp com associated with the composition of two different singular integrals (see [19]). Therefore, our results also give an atomic decomposition of Hp com. Our work appears to be the first result of atomic decomposition in the Triebel-Lizorkin spaces in the multi-parameter setting. © 2016 by De Gruyter 2016.

Gfrerer, H., & Mordukhovich, B. S. (2015). Complete characterizations o f tilt stability in nonlinear programming u nder weakest qualification conditions. *SIAM Journal on Optimization, 25*(4), 2081-2119.
http://proxy.lib.wayne.edu/login?url=http://www.scopus.com/inward/record.url?eid=2-s2.0-84953285794&partnerID=40&md5=0843ec0b3785434cb79a392faecc2e3c.
This paper is devoted to the study of tilt stab ility of local minimizers for classical nonlinear programs with equality and inequality constraints in finite dimensions described by twice continuously differentiable functions. The importance of tilt stability has been well recognized from both theoretical and numerical perspectives of optimization, and this area of research has drawn much attention in the literature, especially in recent years. Based on advanced techniques of variational analysis and generalized differentiation, we derive here complete pointbased second-order characterizations of tilt-stable minimizers entirely in terms of the initial program data under the new qualification conditions, which are the weakest ones for the study of tilt stability. © 2015 Society for Industrial and Applied Mathematics.

Hart, J., & Lu, G. (2016). Hardy Space Estimates for Littlewood–Paley–Stein Square Functions and Calderón–Zygmund Operators. *Journal of Fourier Analysis and Applications, 22*(1), 159-186.
http://proxy.lib.wayne.edu/login?url=http://www.scopus.com/inward/record.url?eid=2-s2.0-84954378571&partnerID=40&md5=4907fa8ff9283e8251720fac4dc14f14.
In this work, we give new sufficient conditions for Littlewood–Paley–Stein square function operators and necessary and sufficient conditions for Calderón–Zygmund operators to be bounded on Hardy spaces Hp with indices smaller than 1. New Carleson measure type conditions are defined for Littlewood–Paley–Stein operators, and the authors show that they are sufficient for the associated square function to be bounded from Hp into Lp. New polynomial growth BMO conditions are also introduced for Calderón–Zygmund operators. These results are

applied to prove that Bony paraproducts can be constructed such that they are bounded on Hardy spaces with exponents ranging all the way down to zero. © 2015, Springer Science+Business Media New York.

He, W., Zhang, Z., & Zhao, R. (2016). The Highest Superconvergence of the Tri-linear Element for Schro¨dinger Operator with Singularity. *Journal of Scientific Computing, 66*(1), 1-18.
http://proxy.lib.wayne.edu/login?url=http://www.scopus.com/inward/record.url?eid=2-s2.0-84953638903&partnerID=40&md5=aab0ebed6e3df3a0b583e03319f6d665.
In this paper, the eigenvalues for Schr$$\ddot{\text {o}}$$o¨dinger operator with singularity are analyzed. A special piecewise uniform rectangular partition is constructed and it has been proven that, under this partition, the tri-linear rectangular finite element method has the highest possible superconvergence rate for eigenvalue. © 2015, Springer Science+Business Media New York.

Makar-Limanov, L. (2015). A new proof of the Abhyankar-Moh-Suzuki theorem via a new algorithm for the polynomial dependence. *Journal of Algebra and its Applications, 14*(9).
http://proxy.lib.wayne.edu/login?url=http://www.scopus.com/inward/record.url?eid=2-s2.0-84953877051&partnerID=40&md5=1b282d0221053d228d7eb953c214283c.
This paper contains a complete and self-contained proof of the AMS theorem. The main tool is a new algorithm producing an irreducible dependence for a pair of polynomials in one variable. © 2015 World Scientific Publishing Company.

Makar-Limanov, L., & Umirbaev, U. (2016). Free Poisson fields and their automorphisms. *Journal of Algebra and its Applications*.
http://proxy.lib.wayne.edu/login?url=http://www.scopus.com/inward/record.url?eid=2-s2.0-84955589887&partnerID=40&md5=e657457719b4c978a3394f2167a482c2.
Let (Formula presented.) be an arbitrary field of characteristic 0. We prove that the group of automorphisms of a free Poisson field (Formula presented.) in two variables (Formula presented.) over (Formula presented.) is isomorphic to the Cremona group (Formula presented.). We also prove that the universal enveloping algebra (Formula presented.) of a free Poisson field (Formula presented.) is a free ideal ring and give a characterization of the Poisson dependence of two elements of (Formula presented.) via universal derivatives. © 2016 World Scientific Publishing Company

Yin, G., Zhang, Q., Yin, K., & Yang, H. (2016) Singularly perturbed markov chains and applications to large-scale systems under uncertainty. *Vol. 46. International Series in Operations Research and Management Science* (pp. 475-514).
http://proxy.lib.wayne.edu/login?url=http://www.scopus.com/inward/record.url?eid=2-s2.0-84954497070&partnerID=40&md5=b519b5dc2a5e76980f4f99632c965de6.
This chapter is concerned with large-scale hybrid stochastic systems, in which the dynamics involve both continuously evolving components and discrete events. Corresponding to different

discrete states, the dynamic behavior of the underlying system could be markedly different. To reduce the complexity of these systems, singularly perturbed Markov chains are used to characterize the system. Asymptotic expansions of probability vectors and the structural properties of these Markov chains are provided. The ideas of decomposition and aggregation are presented using two typical optimal control problems. Such an approach leads to control policies that are simple to obtain and perform nearly as well as the optimal ones with substantially reduced complexity. © Springer International Publishing Switzerland 2015.

Zhang, Z. M., Wang, B. Z., Wang, R., & Wen, Y. Q. (2015). *Enhanced resolution of slots based on time reversal method.* Paper presented at the IEEE Antennas and Propagation Society, AP-S International Symposium (Digest).

PHYSICS

Bhattacharya, B., Paz, G., & Tropiano, A. J. (2015). Model-independent determination of the axial mass parameter in quasielastic antineutrino-nucleon scattering. *Physical Review D - Particles, Fields, Gravitation and Cosmology, 92*(11).
http://proxy.lib.wayne.edu/login?url=http://www.scopus.com/inward/record.url?eid=2-s2.0-84953337933&partnerID=40&md5=3c689c6360098ed08d9ccc8d7c78e25e.
Understanding the charged current quasielestic (CCQE) neutrino-nucleus interaction is important for precision studies of neutrino oscillations. The theoretical description of the interaction depends on the combination of a nuclear model with the knowledge of form factors. While the former has received considerable attention, the latter, in particular, the axial form factor, is implemented using the historical dipole model. Instead, we use a model-independent approach, presented in a previous study, to analyze the muon-antineutrino CCQE mineral oil data published by the MiniBooNE collaboration. We combine the cross section for scattering of antineutrinos off protons in carbon and hydrogen, using the same axial form factor for both. The extracted value of the axial mass parameter mA=0.84-0.04+0.12±0.11 GeV is in very good agreement with the model-independent value extracted from MiniBooNE's neutrino data. Going beyond a one-parameter description of the axial form factor, we extract values of the axial form factor in the range of Q2=0.1⋯1.0 GeV2, finding a very good agreement with the analogous extraction from the neutrino data. We discuss the implications of these results. © 2015 American Physical Society.

Alice Collaboration. (2016). Azimuthal anisotropy of charged jet production in sNN=2.76 TeV Pb-Pb collisions. *Physics Letters, Section B: Nuclear, Elementary Particle and High-Energy Physics, 753*, 511-525.
http://proxy.lib.wayne.edu/login?url=http://www.scopus.com/inward/record.url?eid=2-s2.0-84952802370&partnerID=40&md5=3ba7af5776e51979534effc7bf493cd3.
We present measurements of the azimuthal dependence of charged jet production in central and semi-central sNN=2.76 TeV Pb-Pb collisions with respect to the second harmonic event

plane, quantified as v2ch jet. Jet finding is performed employing the anti-kT algorithm with a resolution parameter R=0.2 using charged tracks from the ALICE tracking system. The contribution of the azimuthal anisotropy of the underlying event is taken into account event-by-event. The remaining (statistical) region-to-region fluctuations are removed on an ensemble basis by unfolding the jet spectra for different event plane orientations independently. Significant non-zero v2ch jet is observed in semi-central collisions (30-50% centrality) for 20<pTch jet<90 GeV/c. The azimuthal dependence of the charged jet production is similar to the dependence observed for jets comprising both charged and neutral fragments, and compatible with measurements of the v2 of single charged particles at high pT. Good agreement between the data and predictions from JEWEL, an event generator simulating parton shower evolution in the presence of a dense QCD medium, is found in semi-central collisions. © 2015 CERN for the benefit of the ALICE Collaboration.

Alice Collaboration. (2016). Direct photon production in Pb-Pb collisions at √sNN = 2.76 TeV. *Physics Letters, Section B: Nuclear, Elementary Particle and High-Energy Physics, 754*, 235-248.
http://proxy.lib.wayne.edu/login?url=http://www.scopus.com/inward/record.url?eid=2-s2.0-84955439406&partnerID=40&md5=50bdde3106e1fcb6a614aa28744b9eff.
Direct photon production at mid-rapidity in Pb-Pb collisions at √sNN=2.76 TeV was studied in the transverse momentum range 0.9<pT<14 GeV/c. Photons were detected with the highly segmented electromagnetic calorimeter PHOS and via conversions in the ALICE detector material with the e+e- pair reconstructed in the central tracking system. The results of the two methods were combined and direct photon spectra were measured for the 0-20%, 20-40%, and 40-80% centrality classes. For all three classes, agreement was found with perturbative QCD calculations for pT > 5 GeV/c. Direct photon spectra down to pT≈1 GeV/c could be extracted for the 20-40% and 0-20% centrality classes. The significance of the direct photon signal for 0.9<pT<2.1 GeV/c is 2.6σ for the 0-20% class. The spectrum in this pT range and centrality class can be described by an exponential with an inverse slope parameter of (297±12stat±41syst) MeV. State-of-the-art models for photon production in heavy-ion collisions agree with the data within uncertainties. © 2016 CERN for the benefit of the ALICE Collaboration.

Alice Collaboration. (2016). Elliptic flow of muons from heavy-flavour hadron decays at forward rapidity in Pb-Pb collisions at √sNN = 2.76 TeV. *Physics Letters, Section B: Nuclear, Elementary Particle and High-Energy Physics, 753*, 41-56.
http://proxy.lib.wayne.edu/login?url=http://www.scopus.com/inward/record.url?eid=2-s2.0-84955265748&partnerID=40&md5=0e6a91f006af778309a9afb539f830b5.
The elliptic flow, v2, of muons from heavy-flavour hadron decays at forward rapidity (2.5<y<4) is measured in Pb-Pb collisions at sNN=2.76 TeV with the ALICE detector at the LHC. The scalar product, two- and four-particle Q cumulants and Lee-Yang zeros methods are used. The dependence of the v2 of muons from heavy-flavour hadron decays on the collision centrality, in the range 0-40%, and on transverse momentum, pT, is studied in the interval

3<pT<10 GeV/c. A positive v2 is observed with the scalar product and two-particle Q cumulants in semi-central collisions (10-20% and 20-40% centrality classes) for the pT interval from 3 to about 5 GeV/c with a significance larger than 3σ, based on the combination of statistical and systematic uncertainties. The v2 magnitude tends to decrease towards more central collisions and with increasing pT. It becomes compatible with zero in the interval 6<pT<10 GeV/c. The results are compared to models describing the interaction of heavy quarks and open heavy-flavour hadrons with the high-density medium formed in high-energy heavy-ion collisions. © 2015 CERN for the benefit of the ALICE Collaboration.

Alice Collaboration. (2016). Pseudorapidity and transverse-momentum distributions of charged particles in proton-proton collisions at √s = 13 TeV. *Physics Letters, Section B: Nuclear, Elementary Particle and High-Energy Physics, 753*, 319-329.
http://proxy.lib.wayne.edu/login?url=http://www.scopus.com/inward/record.url?eid=2-s2.0-84955251233&partnerID=40&md5=cdc9f41f0c87f790f0ff28d82b38ad26.
The pseudorapidity (η) and transverse-momentum (pT) distributions of charged particles produced in proton-proton collisions are measured at the centre-of-mass energy √s=13 TeV. The pseudorapidity distribution in |η|<1.8 is reported for inelastic events and for events with at least one charged particle in |η|<1. The pseudorapidity density of charged particles produced in the pseudorapidity region |η|<0.5 is 5.31±0.18 and 6.46±0.19 for the two event classes, respectively. The transverse-momentum distribution of charged particles is measured in the range 0.15<pT<20 GeV/c and |η|<0.8 for events with at least one charged particle in |η| < 1. The evolution of the transverse momentum spectra of charged particles is also investigated as a function of event multiplicity. The results are compared with calculations from PYTHIA and EPOS Monte Carlo generators. © 2015 CERN for the benefit of the ALICE Collaboration.

CMS Collaboration. (2015). Production of leading charged particles and leading charged-particle jets at small transverse momenta in pp collisions at s =8 TeV. *Physical Review D - Particles, Fields, Gravitation and Cosmology, 92*(11).
http://proxy.lib.wayne.edu/login?url=http://www.scopus.com/inward/record.url?eid=2-s2.0-84952894751&partnerID=40&md5=8b24d41f4849532c82964f2f0f78618a.
The per-event yield of the highest transverse momentum charged particle and charged-particle jet, integrated above a given pTmin threshold starting at pTmin=0.8 and 1 GeV, respectively, is studied in pp collisions at s=8 TeV. The particles and the jets are measured in the pseudorapidity ranges |η|<2.4 and 1.9, respectively. The data are sensitive to the momentum scale at which parton densities saturate in the proton, to multiple partonic interactions, and to other key aspects of the transition between the soft and hard QCD regimes in hadronic collisions. © 2015 CERN, for the CMS Collaboration. Published by the American Physical Society under the terms of the »http://creativecommons.org/licenses/by/3.0/» Creative Commons Attribution 3.0 License. Further distribution of this work must maintain attribution to the author(s) and the published article's title, journal citation, and DOI.

CMS Collaboration. (2015). Search for a light charged Higgs boson decaying to (Formula presented.) in pp collisions at (Formula presented.) TeV. *Journal of High Energy Physics, 2015*(12), 1-37.
http://proxy.lib.wayne.edu/login?url=http://www.scopus.com/inward/record.url?eid=2-s2.0-84953281823&partnerID=40&md5=62420283700ff8b5690ec4540c852253.
Abstract: A search for a light charged Higgs boson, originating from the decay of a top quark and subsequently decaying into a charm quark and a strange antiquark, is presented. The data used in the analysis correspond to an integrated luminosity of 19.7 fb−1 recorded in proton-proton collisions at (formula presented.) TeV by the CMS experiment at the LHC. The search is performed in the process $t\bar{t} \to W^{\pm} b H^{\mp} \bar{b}$(formula presented.), where the W boson decays to a lepton (electron or muon) and a neutrino. The decays lead to a final state comprising an isolated lepton, at least four jets and large missing transverse energy. No significant deviation is observed in the data with respect to the standard model predictions, and model-independent upper limits are set on the branching fraction $\mathcal{B}$t→(formula presented.), ranging from 1.2 to 6.5% for a charged Higgs boson with mass between 90 and 160 GeV, under the assumption that $\mathcal{B}$H+→(formula presented.)[Figure not available: see fulltext.] © 2015, The Author(s).

CMS Collaboration. (2016). Angular analysis of the decay B0→K*0μ+μ- from pp collisions at s=8 TeV. *Physics Letters, Section B: Nuclear, Elementary Particle and High-Energy Physics, 753*, 424-448.
http://proxy.lib.wayne.edu/login?url=http://www.scopus.com/inward/record.url?eid=2-s2.0-84954220254&partnerID=40&md5=78b569f228aa843c821fa6df92925975.
The angular distributions and the differential branching fraction of the decay B0→K*(892)0μ+μ- are studied using data corresponding to an integrated luminosity of 20.5 fb-1 collected with the CMS detector at the LHC in pp collisions at s=8 TeV. From 1430 signal decays, the forward-backward asymmetry of the muons, the K*(892)0 longitudinal polarization fraction, and the differential branching fraction are determined as a function of the dimuon invariant mass squared. The measurements are among the most precise to date and are in good agreement with standard model predictions. © 2015 CERN for the benefit of the CMS Collaboration.

CMS Collaboration. (2016). Measurement of differential cross sections for Higgs boson production in the diphoton decay channel in pp collisions at √s = 8 TeV. *European Physical Journal C, 76*(1), 1-31.
http://proxy.lib.wayne.edu/login?url=http://www.scopus.com/inward/record.url?eid=2-s2.0-84954516268&partnerID=40&md5=a696ce2d613bfbc19630d0f44ceaa2e9.
A measurement is presented of differential cross sections for Higgs boson (H) production in pp collisions at √s = 8TeV. The analysis exploits the H→γγ decay in data corresponding to an integrated luminosity of 19.7fb-1 collected by the CMS experiment at the LHC. The cross section is measured as a function of the kinematic properties of the diphoton system and of the associated jets. Results corrected for detector effects are compared with predictions at next-to-

leading order and next-to-next-to-leading order in perturbative quantum chromodynamics, as well as with predictions beyond the standard model. For isolated photons with pseudorapidities |η|<2.5, and with the photon of largest and next-to-largest transverse momentum (pT γ) divided by the diphoton mass mγγ satisfying the respective conditions of pT γ/mγγ>1/3 and >1/4, the total fiducial cross section is 32±10fb. © 2016, CERN for the benefit of the CMS collaboration.

CMS Collaboration. (2016). Measurement of transverse momentum relative to dijet systems in PbPb and pp collisions at (Formula presented.) TeV. *Journal of High Energy Physics, 2016*(1), 1-52.
http://proxy.lib.wayne.edu/login?url=http://www.scopus.com/inward/record.url?eid=2-s2.0-84953712632&partnerID=40&md5=7328adeb90fca73a703867ba6bb124c0.
Abstract: An analysis of dijet events in PbPb and pp collisions is performed to explore the properties of energy loss by partons traveling in a quark-gluon plasma. Data are collected at a nucleon-nucleon center-of-mass energy of 2.76 TeV at the LHC. The distribution of transverse momentum (pT) surrounding dijet systems is measured by selecting charged particles in different ranges of pT and at different angular cones of pseudorapidity and azimuth. The measurement is performed as a function of centrality of the PbPb collisions, the pT asymmetry of the jets in the dijet pair, and the distance parameter R used in the anti-kT jet clustering algorithm. In events with unbalanced dijets, PbPb collisions show an enhanced multiplicity in the hemisphere of the subleading jet, with the pT imbalance compensated by an excess of low-pT particles at large angles from the jet axes. © 2016, The Author(s).

CMS Collaboration. (2016). Search for a Higgs boson decaying into γ*γ→ℓℓγ with low dilepton mass in pp collisions at √s=8 TeV. *Physics Letters, Section B: Nuclear, Elementary Particle and High-Energy Physics, 753*, 341-362.
http://proxy.lib.wayne.edu/login?url=http://www.scopus.com/inward/record.url?eid=2-s2.0-84952801806&partnerID=40&md5=955a4998d1647f328a4739faf6fe31a0.
A search is described for a Higgs boson decaying into two photons, one of which has an internal conversion to a muon or an electron pair (ℓℓγ). The analysis is performed using proton-proton collision data recorded with the CMS detector at the LHC at a centre-of-mass energy of 8 TeV, corresponding to an integrated luminosity of 19.7 fb-1. The events selected have an opposite-sign muon or electron pair and a high transverse momentum photon. No excess above background has been found in the three-body invariant mass range 120<mℓℓγ<150 GeV, and limits have been derived for the Higgs boson production cross section times branching fraction for the decay H→γ*γ→ℓℓγ, where the dilepton invariant mass is less than 20 GeV. For a Higgs boson with mH=125 GeV, a 95% confidence level (CL) exclusion observed (expected) limit is 6.7 (5.9-1.8 +2.8) times the standard model prediction. Additionally, an upper limit at 95% CL on the branching fraction of H→(J/ψ)γ for the 125 GeV Higgs boson is set at 1.5×10-3. © 2015 The Authors.

CMS Collaboration. (2016). Search for a very light NMSSM Higgs boson produced in decays of the 125 GeV scalar boson and decaying into τ leptons in pp collisions at √s=8 TeV. *Journal of High Energy Physics, 2016*(1), 1-46.
http://proxy.lib.wayne.edu/login?url=http://www.scopus.com/inward/record.url?eid=2-s2.0-84954564102&partnerID=40&md5=9f7b96719e560ef0d43e675c62825d56.
A search for a very light Higgs boson decaying into a pair of τ leptons is presented within the framework of the next-to-minimal supersymmetric standard model. This search is based on a data set corresponding to an integrated luminosity of 19.7 fb−1 of proton-proton collisions collected by the CMS experiment at a centre-of-mass energy of 8 TeV. The signal is defined by the production of either of the two lightest scalars, h1 or h2, via gluon-gluon fusion and subsequent decay into a pair of the lightest Higgs bosons, a1 or h1. The h1 or h2 boson is identified with the observed state at a mass of 125 GeV. The analysis searches for decays of the a1 (h1) states into pairs of τ leptons and covers a mass range for the a1 (h1) boson of 4 to 8 GeV. The search reveals no significant excess in data above standard model background expectations, and an upper limit is set on the signal production cross section times branching fraction as a function of the a1 (h1) boson mass. The 95% confidence level limit ranges from 4.5 pb at ma1(mh1) = 8 GeV to 10.3 pb at ma1(mh1)=5 GeV. © 2016, The Author(s).

CMS Collaboration. (2016). Search for exotic decays of a Higgs boson into undetectable particles and one or more photons. *Physics Letters, Section B: Nuclear, Elementary Particle and High-Energy Physics, 753*, 363-388.
http://proxy.lib.wayne.edu/login?url=http://www.scopus.com/inward/record.url?eid=2-s2.0-84952682652&partnerID=40&md5=5c0d61a26a6dc7c544c6666de1698763.
A search is presented for exotic decays of a Higgs boson into undetectable particles and one or two isolated photons in pp collisions at a center-of-mass energy of 8 TeV. The data correspond to an integrated luminosity of up to 19.4 fb-1 collected with the CMS detector at the LHC. Higgs bosons produced in gluon-gluon fusion and in association with a Z boson are investigated, using models in which the Higgs boson decays into a gravitino and a neutralino or a pair of neutralinos, followed by the decay of the neutralino to a gravitino and a photon. The selected events are consistent with the background-only hypothesis, and limits are placed on the product of cross sections and branching fractions. Assuming a standard model Higgs boson production cross section, a 95% confidence level upper limit is set on the branching fraction of a 125 GeV Higgs boson decaying into undetectable particles and one or two isolated photons as a function of the neutralino mass. For this class of models and neutralino masses from 1 to 120 GeV an upper limit in the range of 7 to 13% is obtained. Further results are given as a function of the neutralino lifetime, and also for a range of Higgs boson masses. © 2015 CERN for the benefit of the CMS Collaboration.

STAR Collaboration. (2016). Centrality dependence of identified particle elliptic flow in relativistic heavy ion collisions at sNN =7.7-62.4 GeV. *Physical Review C - Nuclear Physics, 93*(1). http://proxy.lib.wayne.edu/login?url=http://www.scopus.com/inward/record.url?eid=2-s2.0-84955601541&partnerID=40&md5=f27b8a1847f150df701a99021591ca82.

Elliptic flow (v2) values for identified particles at midrapidity in Au + Au collisions measured by the STAR experiment in the Beam Energy Scan at the Relativistic Heavy Ion Collider at sNN=7.7-62.4 GeV are presented for three centrality classes. The centrality dependence and the data at sNN=14.5 GeV are new. Except at the lowest beam energies, we observe a similar relative v2 baryon-meson splitting for all centrality classes which is in agreement within 15% with the number-of-constituent quark scaling. The larger v2 for most particles relative to antiparticles, already observed for minimum bias collisions, shows a clear centrality dependence, with the largest difference for the most central collisions. Also, the results are compared with a multiphase transport (AMPT) model and fit with a blast wave model. © 2016 American Physical Society.

Pruneau, C. (2015). The multiple facets of correlation functions. *Proceedings of the Indian National Science Academy, 81*(1), 40-50.
http://proxy.lib.wayne.edu/login?url=http://www.scopus.com/inward/record.url?eid=2-s2.0-84955568912&partnerID=40&md5=67cd84a38c1e694878b63a6f93c19d48.
I will review studies of fluctuations and correlations carried out over the last 20 years and hopefully provide some insights for new measurements. © Printed in India.

Tiwari, B., Dixit, A., Naik, R., Lawes, G., & Rao, M. S. R. (2015). Magnetostructural and magnetocaloric properties of bulk LaCrO3 system. *Materials Research Express, 2*(2).
http://proxy.lib.wayne.edu/login?url=http://www.scopus.com/inward/record.url?eid=2-s2.0-84953432576&partnerID=40&md5=d24d595a680beec9f4412762b590b574.
We studied magnetic properties of bulk LaCrO3; a GdFeO3-type distorted perovskite, with a predominant antiferromagnetic phase transition at ~290 K. The bulk LaCrO3 exhibits intrinsic weak ferro magnetism at room temperature, which may arise due to the tilting of CrO6 octahedra, resulting in a non-zero net magnetic moment, as confirmed from the magnetization measurements. A broad magnetically-induced entropy change (-ΔS) is observed with the maxima at 290 K, close to room temperature in LaCrO3 system. © 2015 IOP Publishing Ltd.

POLITICAL SCIENCE

Roth, B. R., & Lean, S. F. (2015). A Bolivarian alternative? The new Latin American populism confronts the global order *International Law and Its Discontents: Confronting Crises* (pp. 221-248).
http://proxy.lib.wayne.edu/login?url=http://www.scopus.com/inward/record.url?eid=2-s2.0-84953856962&partnerID=40&md5=215ec3de3e7d011544823fc74c639686.
INTRODUCTION "Chávez vive, la lucha sigue" is a ubiquitous slogan in Venezuela and the aligned countries of the Bolivarian Alliance for the Peoples of Our America (ALBA). The slogan might be recast as a question. Over the course of his fourteen-year tenure (notoriously interrupted for two tumultuous days in April 2002), Venezuelan President Hugo Chávez Frías not only initiated extraordinary institutional and social transformations in his own country, but

launched or instigated a series of challenges to the global economic, political, and legal orders – challenges reminiscent of an earlier generation of efforts to revise the terms of international order in favor of the global South. These developments have represented a resurgence, albeit in modified form, of the state socialism and Bandung nationalism that once countervailed (both institutionally and ideologically) the global system's dominant forces. The Alliance has established mechanisms to orchestrate substantial flows of international trade and development assistance both among and beyond its member states, flows that have effectively (and not coincidentally) underwritten local political movements that articulate a common set of social values. But with Chávez's death in March 2013, coinciding with a sharpening of Venezuela's political divisions and a deepening of its economic slide, it has become unclear to what extent the ALBA challenge will outlive its progenitor. The polarized internal and intergovernmental responses to the policies of Chávez and his fellow leaders of the Bolivarian Alliance – most centrally, Bolivia's Evo Morales, Ecuador's Rafael Correa, and Nicaragua's Daniel Ortega, along with Cuba's redoubtable Fidel and Raul Castro – have found expression in the sharply contradictory assessments of academic commentators. Indeed, the scholarly accounts of developments on the ground are so thoroughly incommensurable – focusing on such different aspects of local realities and measuring success or failure by such divergent criteria – that it is almost impossible to arrive at a balanced description (let alone evaluation) of the project's impact. © Barbara Stark 2015.

PSYCHOLOGY

Fitzgerald, J. M., Berntsen, D., & Broadbridge, C. L. (2016). The Influences of Event Centrality in Memory Models of PTSD. *Applied Cognitive Psychology, 30*(1), 10-21.
http://proxy.lib.wayne.edu/login?url=http://www.scopus.com/inward/record.url?eid=2-s2.0-84955183035&partnerID=40&md5=c95fd420e08524c8af35f400b0cc7dcb.
The consequences of events for well-being are influenced by individual and situational factors that are often studied in isolation. In the research reported here, a large (N=489) nonclinical sample of college students reported their most traumatic event, posttraumatic stress disorder (PTSD) symptoms, depressive symptoms, personality traits, and characteristics of their event memory. This study achieved three major goals. First, we identified the highest types of stress event types in this population as disruptions of interpersonal relationships, homicides/assaults on others, and assaults/accidents involving themselves. Second, we established that the effects of memory characteristics such as vividness, belief, and impact on PTSD symptoms are mediated by the centrality of the event to identity. Third, we affirmed the hypothesis that a structural model of the influence of personality factors on PTSD symptoms has a higher level of concurrent validity if event centrality is included as a mediator of those influences. © 2016 John Wiley & Sons, Ltd.

McGonagle, A. K., Huang, J. L., & Walsh, B. M. (2015). Insufficient Effort Survey Responding: An Under-Appreciated Problem in Work and Organisational Health

Psychology Research. *Applied Psychology*.
http://proxy.lib.wayne.edu/login?url=http://www.scopus.com/inward/record.url?eid=2-s2.0-84952802998&partnerID=40&md5=43e62460621cfa19898ef11edaced4c0.
Insufficient effort responding (IER) is problematic in that it can add a systematic source of variance for variables with average responses that depart from the scale midpoints. We present a rationale for why IER is of particular importance to Work and Organisational Health Psychology (WOHP) researchers. We also demonstrate its biasing effects using several variables of interest to WOHP researchers (perceived work ability, negative affectivity, perceived disability, work-safety tension, accident/injury frequencies, and experienced and instigated incivility) in two datasets. As expected, IER was significantly correlated with the focal study variables. We also found some evidence that hypothesised bivariate correlations between these variables were inflated when IER respondents were included. Corroborating IER's potential confounding role, we further found significant declines in the magnitude of the hypothesised bivariate correlations after partialling out IER. In addition, we found evidence for biasing (under-estimation) effects for predictors not contaminated by IER in multiple regression models where some predictors and the outcome were both contaminated by IER. We call for WOHP researchers to routinely discourage IER from occurring in their surveys, screen for IER prior to analyzing survey data, and establish a standard practice for handling IER cases. © 2015 International Association of Applied Psychology.

van Middendorp, H., Kool, M. B., van Beugen, S., Denollet, J., Lumley, M. A., & Geenen, R. (2016). Prevalence and relevance of Type D personality in fibromyalgia. *General Hospital Psychiatry*.
http://proxy.lib.wayne.edu/login?url=http://www.scopus.com/inward/record.url?eid=2-s2.0-84955262473&partnerID=40&md5=95bfda57f9fa38cd828dad7d9ac87a07.
Objective: Distressed (Type D) personality, combining high negative affectivity and social inhibition, is linked to poor health in various populations. Because patients with fibromyalgia experience high negative affect and show signs of social inhibition, this study aimed to examine the prevalence of Type D's components and their associations with health in an additive (worse health with both components present) or synergistic way (components amplifying each other's effects). Method: Type D personality and physical and mental health were assessed online by 558 patients with self-reported fibromyalgia (94% women, age 47±11 (21-77). years) by the Type D Scale-14 and RAND-36 Health Status Inventory. Results: Using the standard cutscores, Type D personality was present in 56.5% of patients. Negative affectivity alone and combined with social inhibition was associated with worse mental and, more limited, physical health, but no interactive (synergistic) associations were found. Conclusions: Type D personality in fibromyalgia exceeds prevalence estimates in general, cardiovascular and chronic pain populations. Some indication of an additive but not of a synergistic effect was found, particularly for mental health, with clearly the largest associations for negative affectivity. The high prevalence of Type D's components may have specific treatment implications. © 2015 Elsevier Inc.

Wegner, R., & Abbey, A. (2016). Individual differences in men's misperception of women's sexual intent: Application and extension of the confluence model. *Personality and Individual Differences, 94*, 16-20.
http://proxy.lib.wayne.edu/login?url=http://www.scopus.com/inward/record.url?eid=2-s2.0-84953724458&partnerID=40&md5=8a7e15dc39f7668a8305950e2b3d1c75.
Men are more likely than women to misperceive a cross-sex companion's degree of sexual interest. The current study extends previous research by using the confluence model (Malamuth et al., 1991) to examine how narcissism and impulsive sensation-seeking are directly and indirectly associated with men's misperception of women's sexual interest. A community sample of young, single men (N = 470) completed audio computer-assisted self-interviews. Using path analyses, hostile masculinity and impersonal sexual orientation were proximal predictors of men's misperception of women's sexual intent. Additionally, narcissism was indirectly related to men's misperception through hostile masculinity. Impulsive sensation-seeking was directly and indirectly related to men's misperceptions through impersonal sexual orientation. Although there was a bivariate relationship between alcohol consumption and misperception, this relationship was not significant in the path model. Overall, these findings demonstrate the importance of considering how personality traits increase the risk for misperception. © 2015 Elsevier Ltd.

Wright, A. M., Talia, Y. R., Aldhalimi, A., Broadbridge, C. L., Jamil, H., Lumley, M. A., . . . Arnetz, J. E. (2016). Kidnapping and Mental Health in Iraqi Refugees: The Role of Resilience. *Journal of Immigrant and Minority Health*, 1-10.
http://proxy.lib.wayne.edu/login?url=http://www.scopus.com/inward/record.url?eid=2-s2.0-84954502824&partnerID=40&md5=54a62fa1c8b4f2665e472cad0f6d16d4.
Although kidnapping is common in war-torn countries, there is little research examining its psychological effects. Iraqi refugees (N = 298) were assessed upon arrival to the U.S. and 1 year later. At arrival, refugees were asked about prior trauma exposure, including kidnapping. One year later refugees were assessed for posttraumatic stress disorder (PTSD) and major depression disorder (MDD) using the SCID-I. Individual resilience and narratives of the kidnapping were also assessed. Twenty-six refugees (9 %) reported being kidnapped. Compared to those not kidnapped, those who were had a higher prevalence of PTSD, but not MDD, diagnoses. Analyses examining kidnapping victims revealed that higher resilience was associated with lower rates of PTSD. Narratives of the kidnapping were also discussed. This study suggests kidnapping is associated with PTSD, but not MDD. Additionally, kidnapping victims without PTSD reported higher individual resilience. Future studies should further elucidate risk and resilience mechanisms. © 2016 Springer Science+Business Media New York

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SOCIOLOGY

Fasenfest, D. (2016). Class Politics and the Reactionary Electorate. *Critical Sociology, 42*(1), 3-5. http://proxy.lib.wayne.edu/login?url=http://www.scopus.com/inward/record.url?eid=2-s2.0-84952705716&partnerID=40&md5=b6afd0298b3608ad1897994c9efee26c.