BIOLOGICAL SCIENCES

Cha, K., Sen, P., Raghunayakula, S., & Zhang, X. D. (2015). The cellular distribution of RanGAP1 is regulated by CRM1-mediated nuclear export in mammalian cells. *PLoS ONE, 10*(10). http://proxy.lib.wayne.edu/login?url=http://www.scopus.com/inward/record.url?eid=2-s2.0-84949579957&partnerID=40&md5=acde6a47b6c33d1df3d2f38811e19c6f.
The Ran GTPase activating protein RanGAP1 plays an essential role in nuclear transport by stimulating RanGTP hydrolysis in the cytoplasmic compartment. In mammalian cells, unmodified RanGAP1 is predominantly cytoplasmic, whereas modification by small ubiquitinrelated modifier protein (SUMO) targets RanGAP1 to the cytoplasmic filaments of nuclear pore complex (NPC). Although RanGAP1 contains nine putative nuclear export signals and a nuclear localization signal, little is known if RanGAP1 shuttles between the nuclear and cytoplasmic compartments and how its primary localization in the cytoplasm and at the NPC is regulated. Here we show that inhibition of CRM1-mediated nuclear export using RNAi-knockdown of CRM1 and inactivation of CRM1 by leptomycin B (LMB) results in nuclear accumulation of RanGAP1. LMB treatment induced a more robust redistribution of RanGAP1 from the cytoplasm to the nucleoplasm compared to CRM1 RNAi and also uniquely triggered a decrease or loss of RanGAP1 localization at the NPC, suggesting that LMB treatment is more effective in inhibiting CRM1-mediated nuclear export of RanGAP1. Our time-course analysis of LMB treatment reveals that the NPC-associated RanGAP1 is much more slowly redistributed to the nucleoplasm than the cytoplasmic RanGAP1. Furthermore, LMB-induced nuclear accumulation of RanGAP1 is positively correlated with an increase in levels of SUMO-modified RanGAP1, suggesting that SUMOylation of RanGAP1 may mainly take place in the nucleoplasm. Lastly, we demonstrate that the nuclear localization signal at the C-terminus of RanGAP1 is required for its nuclear accumulation in cells treated with LMB. Taken together, our results elucidate that RanGAP1 is actively transported between the nuclear and cytoplasmic compartments, and that the cytoplasmic and NPC localization of RanGAP1 is dependent on CRM1-mediated nuclear export. © 2015 Cha et al. This is an open access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

Dowling, T. E., Anderson, C. D., Marsh, P. C., & Rosenberg, M. S. (2015). Population structure in the roundtail chub (gila robusta complex) of the gila river basin as determined by microsatellites: Evolutionary and conservation implications. *PLoS ONE, 10*(10). http://proxy.lib.wayne.edu/login?url=http://www.scopus.com/inward/record.url?eid=2-s2.0-84949495588&partnerID=40&md5=5b6afc8b0028b7d817fc78bb7f7a2c8a.
Ten microsatellite loci were characterized for 34 locations from roundtail chub (Gila robusta complex) to better resolve patterns of genetic variation among local populations in the lower Colorado River basin. This group has had a complex taxonomic history and previous molecular analyses failed to identify species diagnostic molecular markers. Our results supported previous molecular studies based on allozymes and DNA sequences, which found that most genetic

variance was explained by differences among local populations. Samples from most localities were so divergent species-level diagnostic markers were not found. Some geographic samples were discordant with current taxonomy due to admixture or misidentification; therefore, additional morphological studies are necessary. Differences in spatial genetic structure were consistent with differences in connectivity of stream habitats, with the typically mainstem species, G. robusta, exhibiting greater genetic connectedness within the Gila River drainage. No species exhibited strong isolation by distance over the entire stream network, but the two species typically found in headwaters, G. nigra and G. intermedia, exhibited greater than expected genetic similarity between geographically proximate populations, and usually clustered with individuals from the same geographic location and/ or sub-basin. These results highlight the significance of microevolutionary processes and importance of maintaining local populations to maximize evolutionary potential for this complex. Augmentation stocking as a conservation management strategy should only occur under extreme circumstances, and potential source populations should be geographically proximate stocks of the same species, especially for the headwater forms. © 2015 Dowling et al. This is an open access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

Friedrich, M., Cook, T., & Zelhof, A. C. (2016). Ancient default activators of terminal photoreceptor differentiation in the pancrustacean compound eye: The homeodomain transcription factors Otd and Pph13. *Current Opinion in Insect Science, 13*, 33-42.
http://proxy.lib.wayne.edu/login?url=http://www.scopus.com/inward/record.url?eid=2-s2.0-84949575526&partnerID=40&md5=27aff2efff92a255aeefd369232a58e4.
The origin of the Drosophila compound eye predates the ancestor of Pancrustacea, the arthropod clade that includes insects and Crustaceans. Recent studies in emerging model systems for pancrustacean development - the red flour beetle Tribolium castaneum and water flea Daphnia pulex - have begun to shed light on the evolutionary conservation of transcriptional mechanisms found for the Drosophila compound eye. Here, we discuss the conserved roles of the transcription factors Otd and Pph13, which complement each other in two terminal events of photoreceptor differentiation: rhabdomere morphogenesis and transcriptional default activation of opsin gene expression. The synthesis of these data allows us to frame an evolutionary developmental model of the earliest events that generated the wavelength-specific photoreceptor subtypes of pancrustacean compound eyes. © 2015 Elsevier Inc.

Meller, V. H., Joshi, S. S., & Deshpande, N. (2015) Modulation of Chromatin by Noncoding RNA. *Vol. 49. Annual Review of Genetics* (pp. 673-695).
http://proxy.lib.wayne.edu/login?url=http://www.scopus.com/inward/record.url?eid=2-s2.0-84948770405&partnerID=40&md5=f82bcdb1692bbcca859d54ef025f1abf.
Noncoding RNAs (ncRNAs) are remarkably powerful, flexible, and pervasive cellular regulators. The involvement of these molecules in virtually all aspects of eukaryotic chromatin function is notable. Long and short ncRNAs play broadly complementary roles in these processes. Short ncRNAs underlie a programmable system of chromatin modification that silences mobile elements, identifies boundaries, and initiates the formation of constitutive heterochromatin in yeast. In contrast, long noncoding RNAs (lncRNAs) enforce developmentally appropriate expression and switch gene expression programs. lncRNAs accomplish this through diverse mechanisms, but often by modulating the activity or localization of chromatin regulatory complexes. Both long and short ncRNAs play key roles in organization of complex genomes of higher eukaryotes, and their coordinated actions appear to underlie some of the more dramatic examples of epigenetic regulation. This review contrasts well-studied examples of chromatin regulation by RNA and introduces examples of coordination between these systems. Copyright © 2015 by Annual Reviews. All rights reserved.

CHEMISTRY

Anthony, T. M., Dedigama-Arachchige, P. M., Maheeka Embogama, D., Faner, T. R., Fouda, A. E., & Pflum, M. K. H. (2015). ATP Analogs in Protein Kinase Research *Kinomics: Approaches and Applications* (pp. 137-168).
http://proxy.lib.wayne.edu/login?url=http://www.scopus.com/inward/record.url?eid=2-s2.0-84948845030&partnerID=40&md5=487f0218814d34fba818251da2ec2616.
Based on the cosubstrate role that ATP plays in the kinase mechanism, modified adenosine 5'-triphosphate (ATP) analogs have been useful tools to probe kinase mechanism, structure, activity, interactions, and function. This chapter reviews the variety of ATP analogs used in kinase research. These analogs differ structurally from natural ATP through alteration of atoms or groups on the base, sugar, and/or triphosphate regions of the molecule. The sections in this chapter are organized by region of modification, with internal-and terminal-phosphate-modified triphosphate analogs discussed separately. After introduction of each ATP analog structure, their use in probing kinase activity, structure, and function is discussed. While base-modified ATP analogs are not tolerated by natural kinases, as-kinase mutants that accept the enlarged base-modified ATP analogs have been created for a number of kinases. © 2015 Wiley-VCH Verlag GmbH & Co. KGaA,. All rights reserved.

Wang, B., Dearring, C. L., Wager-Miller, J., Mackie, K., & Trimpin, S. (2015). Drug detection and quantification directly from tissue using novel ionization methods for mass spectrometry. *European journal of mass spectrometry (Chichester, England), 21*(3), 201-210.

http://proxy.lib.wayne.edu/login?url=http://www.scopus.com/inward/record.url?eid=2-s2.0-84950971407&partnerID=40&md5=ab822c5c707ff452da5f497b9d911e41.

Solvent assisted ionization inlet (SAII) and matrix assisted ionization vacuum (MAIV) were used to quantify rapidly an antipsychotic drug, clozapine, directly from surfaces with minimal sample preparation. This simple surface analysis method based on SAII- and MAIV-mass spectrometry (MS) was developed to allow the detection of endogenous lipids, metabolites, and clozapine directly from sections of mouse brain tissue. A rapid surface assessment was achieved by SAII with the assistance of heat applied to the mass spectrometer inlet. MAIV provided an improved reproducibility without the need of a heated inlet. In addition, isotope dilution and standard addition were used without sample clean-up, and the results correlate well with liquid chromatography tandem MS using sample work-up. Using the simple surface methods, standard solutions containing clozapine and a deuterated internal standard (clozapine-d8) at different concentration ratios were used in the extraction and quantification of clozapine from brain tissue sections of a drug-treated mouse using different tissue thicknesses. The amount of clozapine extracted by these surface methods was independent of tissue thickness.

Ydhyam, S., & Cha, J. K. (2015). Construction of Seven-Membered Carbocycles via Cyclopropanols. *Organic Letters, 17*(23), 5820-5823.

http://proxy.lib.wayne.edu/login?url=http://www.scopus.com/inward/record.url?eid=2-s2.0-84948843946&partnerID=40&md5=a64a08e810756e9aa88500522d0df667.

A new method for seven-membered ring annulation has been devised by an intramolecular cross-coupling of cyclopropanols and aryl/alkenyl halides. This cyclization reaction is broad in scope and provides easy access to not only fused but also bridged bicyclic compounds. © 2015 American Chemical Society.

CLASSICAL AND MODERN LANGUAGES, LITERATURES, AND CULTURES

Figueroa, V. (2015). *Prophetic visions of the past: Pan-Caribbean representations of the Haitian revolution*.

http://proxy.lib.wayne.edu/login?url=http://www.scopus.com/inward/record.url?eid=2-s2.0-84951807923&partnerID=40&md5=357372b6104fc934653bad261e9251ad.

In Prophetic Visions of the Past: Pan-Caribbean Representations of the Haitian Revolution, Víctor Figueroa examines how the Haitian Revolution has been represented in twentieth-century literary works from across the Caribbean. Building on the scholarship of key thinkers of the Latin American "decolonial turn" such as Enrique Dussel, Aníbal Quijano, Walter Mignolo, and Nelson Maldonado-Torres, Figueroa argues that examining how Haiti's neighbors tell the story of the Revolution illuminates its role as a fundamental turning point in both the development and

radical questioning of the modern/colonial world system. Prophetic Visions of the Past includes chapters on literary texts from a wide array of languages, histories, and perspectives. Figueroa addresses work by Alejo Carpentier (Cuba), C. L. R. James (Trinidad), Luis Palés Matos (Puerto Rico), Aimé Césaire (Martinique), Derek Walcott (Saint Lucia), Edouard Glissant (Martinique), and Manuel Zapata Olivella (Colombia). While underscoring each writer's unique position, Figueroa also addresses their shared geographical, historical, and sociopolitical preoccupations, which are closely linked to the region's prolonged experience of colonial interventions. Ultimately, these analyses probe how, for the larger Caribbean region, the Haitian Revolution continues to reflect the tension between inspiring revolutionary hopes and an awareness of ongoing colonial objectification and exploitation. © 2015 by The Ohio State University. All rights reserved.

COMMUNICATION SCIENCES AND DISORDERS

Hughes, C. D., Gabel, R., & Daniels, D. E. (2015). Discussing stuttering with parents: A preliminary study of the experiences of adolescents who stutter. *Speech, Language and Hearing, 18*(1), 44-54.
http://proxy.lib.wayne.edu/login?url=http://www.scopus.com/inward/record.url?eid=2-s2.0-84948808579&partnerID=40&md5=b8ad27391a231c232509105fc01dd8ba.
A qualitative approach was used to explore the experiences of adolescents who stutter (AWS) related to discussing aspects of their stuttering with their parents. Thematic analysis from semi-structured interviews revealed three major themes and seven minor themes. Major themes consisted of (1) discussions with parents; (2) decisions about speech therapy; and (3) types of parental assistance. Minor themes included (1) preference to talk with mothers; (2) speech techniques and general information; (3) parents' idea to begin speech therapy; (4) participants' idea to begin speech therapy; (5) reminders to use techniques and providing advice; (6) practicing speech techniques together; and (7) good listening skills and not interrupting. Findings from the data suggest that these participants discussed their speech therapy and stuttering differently with mothers and fathers with topics of discussion centered on speech skills, general information about stuttering, and what activities were done in the speech therapy sessions. © W. S. Maney & Son Ltd 2015.

ENGLISH

Marback, R. (Ed.). (2015). *Generations: Rethinking age and citizenship*.
http://proxy.lib.wayne.edu/login?url=http://www.scopus.com/inward/record.url?eid=2-s2.0-84951918842&partnerID=40&md5=b8419b9041b1bc28427d9eb095dd4ff2.
The meaning of citizenship and the way that it is expressed by an individual varies with age, develops over time, and is often learned by interacting with members of other generations. In Generations: Rethinking Age and Citizenship, editor Richard Marback presents contributions that

explore this temporal dimension of membership in political communities through a variety of rich disciplinary perspectives. While the role of human time and temporality receive less attention in the interdisciplinary study of citizenship than do spatial dynamics of location and movement, Generations demonstrates that these factors are central to a full understanding of citizenship issues. Essays in Generations are organized into four sections: Age, Cohort, and Generation; Young Age, Globalization, Migration; Generational Disparities and the Clash of Cultures; and Later Life, Civic Engagement, Disenfranchisement. Contributors visit a range of geographic locations—including the U.S., U.K., Europe, and Africa—and consider the experiences of citizens who are native born, immigrant, and repatriated, in time periods that range from the nineteenth century to the present. Taken together, the diverse contributions in this volume illustrate the ways in which personal experiences of community membership change as we age, and also explore how experiences of civic engagement can and do change from one generation to the next. Teachers and students of citizenship studies, cultural studies, gerontology, sociology, and political science will enjoy this thought-provoking look at age, aging, and generational differences in relation to the concept and experience of citizenship. © 2015 by Wayne State University Press. All rights reserved.

Marback, R. (2015). Preface to the series in citizenship studies *Generations: Rethinking Age and Citizenship* (pp. ix-x).
http://proxy.lib.wayne.edu/login?url=http://www.scopus.com/inward/record.url?eid=2-s2.0-84951973223&partnerID=40&md5=98b0e5459d1dc6bc4b4a57bb003d0fd1.
(No abstract available)

Marback, R. (2015). Introduction: Rethinking age and citizenship *Generations: Rethinking Age and Citizenship* (pp. 1-14).
http://proxy.lib.wayne.edu/login?url=http://www.scopus.com/inward/record.url?eid=2-s2.0-84951959749&partnerID=40&md5=4b85bcafce2e399d2f79a480817d3712.
(No abstract available)

Marback, R. (2015). The challenge of anc youth from the Soweto uprising to Julius Malema *Generations: Rethinking Age and Citizenship* (pp. 209-227).
http://proxy.lib.wayne.edu/login?url=http://www.scopus.com/inward/record.url?eid=2-s2.0-84951987237&partnerID=40&md5=0e4894015e604d1756bafbcfde5a4ea1.
(No abstract available)

Robbins-Ruszkowski, J. C., & Marback, R. (2015). Conclusion *Generations: Rethinking Age and Citizenship* (pp. 313-322).
http://proxy.lib.wayne.edu/login?url=http://www.scopus.com/inward/record.url?eid=2-s2.0-84952064846&partnerID=40&md5=dc1a36df9de5e223b558e143dedc29d3.
(No abstract available)

HISTORY

Williams, K. E. (2015). The wounds that cried out: Reckoning with African Americans' testimonies of trauma and suffering from night riding. *The World the Civil War Made* **(pp. 159-182).**
http://proxy.lib.wayne.edu/login?url=http://www.scopus.com/inward/record.url?eid=2-s2.0-84951060561&partnerID=40&md5=ea61a3991a0f4c6726c29ff191e7f366.
(No abstract available)

MATHEMATICS

Dai, W., & Lu, G. (2015). Lp estimates for multi-linear and multi-parameter pseudo-differential operators. *Bulletin de la Societe Mathematique de France, 143*(3), 567-597.
http://proxy.lib.wayne.edu/login?url=http://www.scopus.com/inward/record.url?eid=2-s2.0-84952023012&partnerID=40&md5=105fa2fcf31762a2284a6d0e966543a7.
We establish the pseudo-differential variant of the Lp estimates for multi-linear and multi-parameter Coifman-Meyer multiplier operators proved by C. Muscalu, J. Pipher, T. Tao and C. Thiele in [21, 22]. This gives an affirmative answer to the question, raised in the book of C. Muscalu and W. Schlag [23], on whether the Lp estimates for multi-linear and multi-parameter pseudo-differential operators hold. © Société Mathématique de France 2015.

Mordukhovich, B. S., & Sarabi, M. E. (2016). Generalized differentiation of piecewise linear functions in second-order variational analysis. *Nonlinear Analysis, Theory, Methods and Applications, 132*, 240-273.
http://proxy.lib.wayne.edu/login?url=http://www.scopus.com/inward/record.url?eid=2-s2.0-84949035661&partnerID=40&md5=26e542814faae0000faf519dceaf1ce1.
The paper is devoted to a comprehensive second-order study of a remarkable class of convex extended-real-valued functions that is highly important in many aspects of nonlinear and variational analysis, specifically those related to optimization and stability. This class consists of lower semicontinuous functions with possibly infinite values on finite-dimensional spaces, which are labeled as "piecewise linear" ones and can be equivalently described via the convexity of their epigraphs. In this paper we calculate the second-order subdifferentials (generalized Hessians) of arbitrary convex piecewise linear functions, together with the corresponding geometric objects, entirely in terms of their initial data. The obtained formulas allow us, in particular, to justify a new exact (equality-type) second-order sum rule for such functions in the general nonsmooth setting. © 2015 Elsevier Ltd. All rights reserved.

PHILOSOPHY

Spalding, A. D., Jr., & Kim, E. J. K. (2015). Should Western Corporations Ban the Use of Shari'a Arbitration Clauses in their Commercial Contracts? *Journal of Business Ethics, 132*(3), 613-626.
http://proxy.lib.wayne.edu/login?url=http://www.scopus.com/inward/record.url?eid=2-s2.0-84952630865&partnerID=40&md5=652e0078995c0fe830904cc18c04991d.
In recent years, there has been an increase in the adoption of Shari'a in Europe and North America as an arbitration protocol for the resolution of potential contractual disputes. In a largely secular Western business environment, this reality raises corporate policy implications for business organizations. In particular, questions are raised about whether Shari'a is by nature too unpredictable—and too dismissive of women's rights—to be properly and ethically permitted by Western companies as a possible dispute resolution alternative. This article examines the dynamics and factors that are involved as corporate managers decide whether Shari'a arbitration ought to be banned entirely from contractual negotiations. Arguments for and against the inclusion of a Shari'a arbitration clauses in commercial contracts and contract negotiations are presented. The article concludes that while managers should exercise great prudence and consider the moral implications of negotiating arbitration clauses, an organizational ban of the use of faith-informed arbitration generally, or Shari'a in particular, would be neither morally required nor optimally serve the interests of the organization or its stakeholders. © 2014, Springer Science+Business Media Dordrecht.

PHYSICS

CDF Collaboration. (2015). Study of the energy dependence of the underlying event in proton-antiproton collisions. *Physical Review D - Particles, Fields, Gravitation and Cosmology, 92*(9).
http://proxy.lib.wayne.edu/login?url=http://www.scopus.com/inward/record.url?eid=2-s2.0-84948740527&partnerID=40&md5=eec25ce996d0f578074030a7f053ba1e.
We study charged particle production (pT>0.5 GeV/c, |η|<0.8) in proton-antiproton collisions at total center-of-mass energies s=300 GeV, 900 GeV, and 1.96 TeV. We use the direction of the charged particle with the largest transverse momentum in each event to define three regions of η-φ space: "toward", "away", and "transverse." The average number and the average scalar pT sum of charged particles in the transverse region are sensitive to the modeling of the "underlying event." The transverse region is divided into a MAX and MIN transverse region, which helps separate the "hard component" (initial and final-state radiation) from the "beam-beam remnant" and multiple parton interaction components of the scattering. The center-of-mass energy dependence of the various components of the event is studied in detail. The data presented here can be used to constrain and improve QCD Monte Carlo models, resulting in more precise predictions at the LHC energies of 13 and 14 TeV. © 2015 American Physical Society.

ALICE Collaboration. (2016). Search for weakly decaying Λn and ΛΛ exotic bound states in central Pb-Pb collisions at sNN=2.76 TeV. *Physics Letters, Section B: Nuclear, Elementary Particle and High-Energy Physics, 752*, 267-277.

http://proxy.lib.wayne.edu/login?url=http://www.scopus.com/inward/record.url?eid=2-s2.0-84949292918&partnerID=40&md5=074f729963c0f1f684fe61c8c36879e3.

We present results of a search for two hypothetical strange dibaryon states, i.e. the H-dibaryon and the possible Λn bound state. The search is performed with the ALICE detector in central (0-10%) Pb-Pb collisions at sNN=2.76 TeV, by invariant mass analysis in the decay modes Λn→dπ+ and H-dibaryon →Λpπ-. No evidence for these bound states is observed. Upper limits are determined at 99% confidence level for a wide range of lifetimes and for the full range of branching ratios. The results are compared to thermal, coalescence and hybrid UrQMD model expectations, which describe correctly the production of other loosely bound states, like the deuteron and the hypertriton. © 2015 The Authors.

STAR Collaboration. (2015). Azimuthal Anisotropy in U+ U and Au+Au Collisions at RHIC. *Physical Review Letters, 115*(22).

http://proxy.lib.wayne.edu/login?url=http://www.scopus.com/inward/record.url?eid=2-s2.0-84949633052&partnerID=40&md5=9f7dfa176f26efa5f0b19f18af0323f5.

Collisions between prolate uranium nuclei are used to study how particle production and azimuthal anisotropies depend on initial geometry in heavy-ion collisions. We report the two- and four-particle cumulants, v2{2} and v2{4}, for charged hadrons from U+U collisions at sNN=193 GeV and Au+Au collisions at sNN=200 GeV. Nearly fully overlapping collisions are selected based on the energy deposited by spectators in zero degree calorimeters (ZDCs). Within this sample, the observed dependence of v2{2} on multiplicity demonstrates that ZDC information combined with multiplicity can preferentially select different overlap configurations in U+U collisions. We also show that v2 vs multiplicity can be better described by models, such as gluon saturation or quark participant models, that eliminate the dependence of the multiplicity on the number of binary nucleon-nucleon collisions. © 2015 American Physical Society.

STAR Collaboration. (2015). Observation of Transverse Spin-Dependent Azimuthal Correlations of Charged Pion Pairs in p ↑+p at s =200 GeV. *Physical Review Letters, 115*(24).

http://proxy.lib.wayne.edu/login?url=http://www.scopus.com/inward/record.url?eid=2-s2.0-84949680060&partnerID=40&md5=f632774e4cfb8e1da6682f85764ca0d6.

We report the observation of transverse polarization-dependent azimuthal correlations in charged pion pair production with the STAR experiment in p↑+p collisions at RHIC. These correlations directly probe quark transversity distributions. We measure signals in excess of 5 standard deviations at high transverse momenta, at high pseudorapidities η>0.5, and for pair masses around the mass of the ρ meson. This is the first direct transversity measurement in p+p collisions. © 2015 American Physical Society.

Bazzi, K., Nazri, M., Naik, V. M., Garg, V. K., Oliveira, A. C., Vaishnava, P. P., . . . Naik, R. (2016). Enhancement of electrochemical behavior of nanostructured LiFePO4/Carbon cathode material with excess Li. *Journal of Power Sources, 306*, 17-23.
http://proxy.lib.wayne.edu/login?url=http://www.scopus.com/inward/record.url?eid=2-s2.0-84949580016&partnerID=40&md5=94301f770242a257092d817cf56da42c.

We have synthesized carbon coated LiFePO4 (C-LiFePO4) and C-Li1.05FePO4 with 5 mol% excess Li via sol-gel method using oleic acid as a source of carbon for enhancing electronic conductivity and reducing the average particle size. Although the phase purity of the crystalline samples was confirmed by x-ray diffraction (XRD), the 57Fe Mössbauer spectroscopy analyses show the presence of ferric impurity phases in both stoichiometric and non-stoichiometric C-LiFePO4 samples. Transmission electron microscopy measurements show nanosized C-LiFePO4 particles uniformly covered with carbon, with average particle size reduced from ~100 nm to ~50 nm when excess lithium is used. Electrochemical measurements indicate a lower charge transfer resistance and better electrochemical performance for C-Li1.05FePO4 compared to that of C-LiFePO4. The aim of this work is to systematically analyze the nature of impurities formed during synthesis of LiFePO4 cathode material, and their impact on electrochemical performance. The correlation between the morphology, charge transfer resistance, diffusion coefficient and electrochemical performance of C-LiFePO4 and C- Li1.05FePO4 cathode materials are discussed. © 2015 Elsevier B.V. All rights reserved.

CMS Collaboration. (2016). Search for neutral MSSM Higgs bosons decaying to µ+µ- in pp collisions at √s=7 and 8 TeV. *Physics Letters, Section B: Nuclear, Elementary Particle and High-Energy Physics, 752*, 221-246.
http://proxy.lib.wayne.edu/login?url=http://www.scopus.com/inward/record.url?eid=2-s2.0-84949009987&partnerID=40&md5=78a265f9a471709827dc85cc1d43cfeb.

A search for neutral Higgs bosons predicted in the minimal supersymmetric standard model (MSSM) for µ+µ- decay channels is presented. The analysis uses data collected by the CMS experiment at the LHC in proton-proton collisions at centre-of-mass energies of 7 and 8 TeV, corresponding to integrated luminosities of 5.1 and 19.3 fb-1, respectively. The search is sensitive to Higgs bosons produced either through the gluon fusion process or in association with a bb quark pair. No statistically significant excess is observed in the µ+µ- mass spectrum. Results are interpreted in the framework of several benchmark scenarios, and the data are used to set an upper limit on the MSSM parameter tanβ as a function of the mass of the pseudoscalar A boson in the range from 115 to 300 GeV. Model independent upper limits are given for the product of the cross section and branching fraction for gluon fusion and b quark associated production at s=8 TeV. They are the most stringent limits obtained to date in this channel. © 2015 The Authors.

CMS Collaboration. (2015). Differential cross section measurements for the production of a W boson in association with jets in proton-proton collisions at s = 7 TeV. *Physics Letters, Section B: Nuclear, Elementary Particle and High-Energy Physics, 741*, **12-37.**
http://proxy.lib.wayne.edu/login?url=http://www.scopus.com/inward/record.url?eid=2-s2.0-84949115994&partnerID=40&md5=b0da8e33f040189f90e9e20fc7817d37.
Measurements are reported of differential cross sections for the production of a W boson, which decays into a muon and a neutrino, in association with jets, as a function of several variables, including the transverse momenta (pT) and pseudorapidities of the four leading jets, the scalar sum of jet transverse momenta (HT), and the difference in azimuthal angle between the directions of each jet and the muon. The data sample of pp collisions at a centre-of-mass energy of 7 TeV was collected with the CMS detector at the LHC and corresponds to an integrated luminosity of 5.0 fb-1. The measured cross sections are compared to predictions from Monte Carlo generators, MadGraph+pythia and sherpa, and to next-to-leading-order calculations from BlackHat+sherpa. The differential cross sections are found to be in agreement with the predictions, apart from the pT distributions of the leading jets at high pT values, the distributions of the HT at high-HT and low jet multiplicity, and the distribution of the difference in azimuthal angle between the leading jet and the muon at low values. © 2014 The Authors.

CMS Collaboration. (2015). Measurements of jet multiplicity and differential production cross sections of Z+jets events in proton-proton collisions at s =7TeV. *Physical Review D - Particles, Fields, Gravitation and Cosmology, 91*(**5**).
http://proxy.lib.wayne.edu/login?url=http://www.scopus.com/inward/record.url?eid=2-s2.0-84949116332&partnerID=40&md5=8871268411ae7307f0c08496d1e629c7.
Measurements of differential cross sections are presented for the production of a Z boson and at least one hadronic jet in proton-proton collisions at s=7TeV, recorded by the CMS detector, using a data sample corresponding to an integrated luminosity of 4.9fb-1. The jet multiplicity distribution is measured for up to six jets. The differential cross sections are measured as a function of jet transverse momentum and pseudorapidity for the four highest transverse momentum jets. The distribution of the scalar sum of jet transverse momenta is also measured as a function of the jet multiplicity. The measurements are compared with theoretical predictions at leading and next-to-leading order in perturbative QCD. © 2015 CERN, for the CMS Collaboration.

CMS Collaboration. (2015). Measurement of the differential cross section for top quark pair production in pp collisions at √s=8 TeV. *European Physical Journal C, 75*(**11**), **1-39.**
http://proxy.lib.wayne.edu/login?url=http://www.scopus.com/inward/record.url?eid=2-s2.0-84948993200&partnerID=40&md5=065bdcfcead9f724123adbccd048eb8c.
The normalized differential cross section for top quark pair (tt⁻) production is measured in pp collisions at a centre-of-mass energy of 8TeV at the CERN LHC using the CMS detector in data corresponding to an integrated luminosity of 19.7fb-1. The measurements are performed in the lepton+jets (e/μ++jets) and in the dilepton e+e-, μ+μ-, and e±μ∓) decay channels. The tt⁻ cross section is measured as a function of the kinematic properties of the charged leptons, the jets

associated to b quarks, the top quarks, and the tt̄ system. The data are compared with several predictions from perturbative quantum chromodynamic up to approximate next-to-next-to-leading-order precision. No significant deviations are observed relative to the standard model predictions. © 2015, CERN for the benefit of the CMS collaboration.

Belle Collaboration. (2015). Inclusive cross sections for pairs of identified light charged hadrons and for single protons in e+e- at s =10.58 GeV. *Physical Review D - Particles, Fields, Gravitation and Cosmology, 92***(9).**
http://proxy.lib.wayne.edu/login?url=http://www.scopus.com/inward/record.url?eid=2-s2.0-84948845948&partnerID=40&md5=7cf6e3c672189c64b21fb67f7b28a9c4.
We report the first double differential cross sections of two charged pions and kaons (e+e-→hhX) in electron-positron annihilation as a function of the fractional energies of the two hadrons for any charge and hadron combination. The dependence of these dihadron cross sections on the topology (same, opposite hemisphere or anywhere) is also studied with the help of the event shape variable thrust and its axis. The ratios of these dihadron cross sections for different charges and hadron combinations directly shed light on the contributing fragmentation functions. For example, we find that the ratio of same-sign pion pairs over opposite-sign pion pairs drops toward higher fractional energies where disfavored fragmentation is expected to be suppressed. These dihadron results are obtained from a 655 fb-1 data sample collected near the (4S) resonance with the Belle detector at the KEKB asymmetric-energy e+e- collider. Extending the previously published single-pion and single-kaon cross sections, single-proton (e+e-→pX) cross sections are extracted from a 159 fb-1 data subsample. © 2015 American Physical Society.

ALICE Collaboration. (2015). Centrality dependence of high-pT D meson suppression in Pb-Pb collisions at (Formula presented.) TeV. *Journal of High Energy Physics, 2015***(11), 1-24.**
http://proxy.lib.wayne.edu/login?url=http://www.scopus.com/inward/record.url?eid=2-s2.0-84949566305&partnerID=40&md5=86e49c03bdbe2fce525be4cb195acea6.
Abstract: The nuclear modification factor, RAA, of the prompt charmed mesons D0, D+ and D∗+, and their antiparticles, was measured with the ALICE detector in Pb-Pb collisions at a centre-of-mass energy sNN=2.76(Formula presented.) TeV in two transverse momentum intervals, 5 < pT< 8 GeV/c and 8 < pT< 16 GeV/c, and in six collision centrality classes. The RAA shows a maximum suppression of a factor of 5-6 in the 10% most central collisions. The suppression and its centrality dependence are compatible within uncertainties with those of charged pions. A comparison with the RAA of non-prompt J/ψ from B meson decays, measured by the CMS Collaboration, hints at a larger suppression of D mesons in the most central collisions.[Figure not available: see fulltext.] © 2015, The Author(s).

ALICE Collaboration. (2015). Centrality dependence of inclusive J/ψ production in p-Pb collisions at (Formula presented.) TeV. *Journal of High Energy Physics, 2015*(11), 1-33.
http://proxy.lib.wayne.edu/login?url=http://www.scopus.com/inward/record.url?eid=2-s2.0-84949555773&partnerID=40&md5=5233096cde3a6e12f000e313be72af8e.

Abstract: We present a measurement of inclusive J/ψ production in p-Pb collisions at sNN=5.02(Formula presented.) TeV as a function of the centrality of the collision, as estimated from the energy deposited in the Zero Degree Calorimeters. The measurement is performed with the ALICE detector down to zero transverse momentum, pT, in the backward (−4.46 < ycms< −2.96) and forward (2.03 < ycms< 3.53) rapidity intervals in the dimuon decay channel and in the mid-rapidity region (−1.37 < ycms< 0.43) in the dielectron decay channel. The backward and forward rapidity intervals correspond to the Pb-going and p-going direction, respectively. The pT-differential J/ψ production cross section at backward and forward rapidity is measured for several centrality classes, together with the corresponding average pT and pT2 values. The nuclear modification factor is presented as a function of centrality for the three rapidity intervals, and as a function of pT for several centrality classes at backward and forward rapidity. At mid- and forward rapidity, the J/ψ yield is suppressed up to 40% compared to that in pp interactions scaled by the number of binary collisions. The degree of suppression increases towards central p-Pb collisions at forward rapidity, and with decreasing pT of the J/ψ. At backward rapidity, the nuclear modification factor is compatible with unity within the total uncertainties, with an increasing trend from peripheral to central p-Pb collisions.[Figure not available: see fulltext.] © 2015, The Author(s).

CMS Collaboration. (2015). Search for supersymmetry in the vector-boson fusion topology in proton-proton collisions at √s = 8 TeV. *Journal of High Energy Physics, 2015*(11), 1-42.
http://proxy.lib.wayne.edu/login?url=http://www.scopus.com/inward/record.url?eid=2-s2.0-84949478621&partnerID=40&md5=05a9ed9fc9fd75ccda46b54a61323ea9.

Abstract: The first search for supersymmetry in the vector-boson fusion topology is presented. The search targets final states with at least two leptons, large missing transverse momentum, and two jets with a large separation in rapidity. The data sample corresponds to an integrated luminosity of 19.7 fb−1 of proton-proton collisions at √s = 8 TeV collected with the CMS detector at the CERN LHC. The observed dijet invariant mass spectrum is found to be consistent with the expected standard model prediction. Upper limits are set on the cross sections for chargino and neutralino production with two associated jets, assuming the supersymmetric partner of the τ lepton to be the lightest slepton and the lightest slepton to be lighter than the charginos. For a so-called compressed-mass-spectrum scenario in which the mass difference between the lightest supersymmetric particle (Formula presented.) and the next lightest, mass-degenerate, gaugino particles (Formula presented.) and (Formula presented.) is 50 GeV, a mass lower limit of 170 GeV is set for these latter two particles.[Figure not available: see fulltext.] © 2015, The Author(s).

POLITICAL SCIENCE

Brown, R. K., & Brown, R. E. (2015). Race/Ethnicity, Religion and Partisan Leanings. *Review of Religious Research, 57*(4), 469-505.
http://proxy.lib.wayne.edu/login?url=http://www.scopus.com/inward/record.url?eid=2-s2.0-84948969278&partnerID=40&md5=89f4b2e36882f45e42b10f072e635a47.
Using the 2004–2008 national politics studies, our work suggests that race/ethnicity matters to our understanding of religion and partisan leanings. Among Whites, the association between religious faith and partisan leanings are, in part, explained by contrasting social–political attitudes held by Evangelical and Non-Evangelical Protestants. Similarly, the degree to which White attendees of congregations that encourage political discourse maintain more liberal partisan leanings than other Whites is partly explained by their lower scores on our measures of state power, patriotic symbols, and structural understanding of racial inequality. Even when these views are accounted for, attending worship services, on average, is associated with conservative partisan leanings among Whites. In contrast, worship attendance maintains a fairly negligible relationship with the partisan leanings of Hispanic and African Americans. Similarly, religious faith and attending political congregations maintains a relatively inconsistent relationship with the partisan leanings of racial/ethnic minorities. And, the extent to which these forms of religion are associated with their partisan leanings, their views on state power, patriotism, and race and opportunities play a fairly marginal and inconsistent role in explaining these relationships. © 2015, Religious Research Association, Inc.

PSYCHOLOGY

Neltner, J. H., Abner, E. L., Jicha, G. A., Schmitt, F. A., Patel, E., Poon, L. W., . . . Nelson, P. T. (2015). Brain pathologies in extreme old age. *Neurobiology of Aging*.
http://proxy.lib.wayne.edu/login?url=http://www.scopus.com/inward/record.url?eid=2-s2.0-84948799893&partnerID=40&md5=cf7939cb4a058de54540e6ae0a05273b.
With an emphasis on evolving concepts in the field, we evaluated neuropathologic data from very old research volunteers whose brain autopsies were performed at the University of Kentucky Alzheimer's Disease Center, incorporating data from the Georgia Centenarian Study (n = 49 cases included), Nun Study (n = 17), and University of Kentucky Alzheimer's Disease Center (n = 11) cohorts. Average age of death was 102.0 (range: 98-107) years overall. Alzheimer's disease pathology was not universal (62% with "moderate" or "frequent" neuritic amyloid plaque densities), whereas frontotemporal lobar degeneration was absent. By contrast, some hippocampal neurofibrillary tangles (including primary age-related tauopathy) were observed in every case. Lewy body pathology was seen in 16.9% of subjects and hippocampal sclerosis of aging in 20.8%. We describe anatomic distributions of pigment-laden macrophages, expanded Virchow-Robin spaces, and arteriolosclerosis among Georgia Centenarians. Moderate or severe arteriolosclerosis pathology, throughout the brain, was associated with both hippocampal

sclerosis of aging pathology and an ABCC9 gene variant. These results provide fresh insights into the complex cerebral multimorbidity, and a novel genetic risk factor, at the far end of the human aging spectrum. © 2015 Elsevier Inc.

Thrasher, G., Zabel, K., & Baltes, B. (2015). Resiliency at work for older employees *The Multi-generational and Aging Workforce: Challenges and Opportunities* (pp. 212-233).
http://proxy.lib.wayne.edu/login?url=http://www.scopus.com/inward/record.url?eid=2-s2.0-84949177464&partnerID=40&md5=ed37f827b425bc1bcc34df900bf74c27.
(No abstract available)

SOCIOLOGY

Brown, R. K., & Brown, R. E. (2015). Race/Ethnicity, Religion and Partisan Leanings. *Review of Religious Research, 57*(4), 469-505.
http://proxy.lib.wayne.edu/login?url=http://www.scopus.com/inward/record.url?eid=2-s2.0-84948969278&partnerID=40&md5=89f4b2e36882f45e42b10f072e635a47.
Using the 2004–2008 national politics studies, our work suggests that race/ethnicity matters to our understanding of religion and partisan leanings. Among Whites, the association between religious faith and partisan leanings are, in part, explained by contrasting social–political attitudes held by Evangelical and Non-Evangelical Protestants. Similarly, the degree to which White attendees of congregations that encourage political discourse maintain more liberal partisan leanings than other Whites is partly explained by their lower scores on our measures of state power, patriotic symbols, and structural understanding of racial inequality. Even when these views are accounted for, attending worship services, on average, is associated with conservative partisan leanings among Whites. In contrast, worship attendance maintains a fairly negligible relationship with the partisan leanings of Hispanic and African Americans. Similarly, religious faith and attending political congregations maintains a relatively inconsistent relationship with the partisan leanings of racial/ethnic minorities. And, the extent to which these forms of religion are associated with their partisan leanings, their views on state power, patriotism, and race and opportunities play a fairly marginal and inconsistent role in explaining these relationships. © 2015, Religious Research Association, Inc.