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A year of remote teaching

Greetings from the UCR Department of Physics & Astronomy. This is our annual newsletter, sent to former students, retired faculty, benefactors, and friends. We convey our best wishes for your health, safety, and well being !

We are now in the fourth, and—we expect—final quarter of remote teaching imposed by covid. For fall 2021, we plan in-person instruction for all except a few general education classes. (There may be a requirement that students maintain social distancing in the fall, which is why very large general-ed classes might remain online.) We have learned a lot about online teaching this past year. In a few ways, it offers students advantages. For example, the lectures (delivered live) are videoed and posted online with closed captioning. This allows students to review the lectures following their presentation or to make up for a missed class. This videoing of lectures is generally not feasible with in-person instruction. Also, with remote instruction, there are no restrictions on class size imposed by classroom capacity. Nonetheless, it is more difficult to build a rapport with students through online teaching and we greatly look forward to being back on campus in the fall.

Despite severe budgetary constraints imposed by covid, we were able to conduct a successful faculty search last year, one of the few searches the campus allowed to go forward. We are thus very pleased to announce that Jonathan Richardson, a 2016 Ph.D. recipient from U. Chicago, will be joining the department in fall 2021. Jonathan is currently a member of the Experimental Gravitational Physics Group and LIGO Laboratory at Caltech. His research concerns the testing of gravity in extreme regimes and the study of black holes through precision measurements of gravitational radiation. The hiring of Jonathan, and the foray of the Department into gravitational wave physics, is a very exciting development and represents the first of a number of faculty positions in experimental particle astrophysics we anticipate filling over the next few years. These positions are associated with Prof. Barry Barish, a Nobel Prize winner who joined the UCR faculty in 2018 and who is overseeing

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Prof. Barton wins a Maximizing Investigators' Research Award for early-stage investigators

The award, worth 1.86 million dollars, is the first-ever grant for the Department of Physics and Astronomy from the National Institute of Health.

<https://physics.ucr.edu/news/2020/08/10/nih-grant-physicist-focuses-how-pathogens-evolve>



Prof. Yu wins Templeton grant

The John Templeton Foundation awarded a 3-year grant to Prof. Yu to explore theories of self-interacting dark matter.

<https://physics.ucr.edu/news/2020/07/01/grant-awarded-physicist-explore-dark-sector>



Prof. Mobasher receives Riverside Unified School District Board of Education Presidential Award

The award recognizes his many efforts in STEM outreach, including the organization of summer academies for high school students.

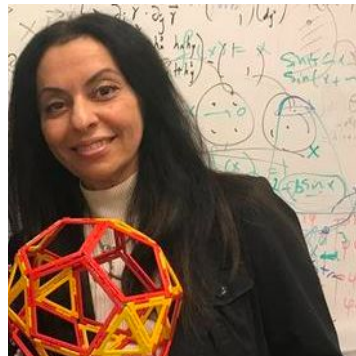
<https://physics.ucr.edu/news/2020/10/21/riverside-unified-school-district-honors-astronomer-his-contributions-k-12-stem>



Prof. Zandi awarded a multi-campus research grant to study the physical principles underlying coronavirus formation

Prof. Zandi is the principal investigator of the 1.75 million dollar award.

<https://physics.ucr.edu/news/2020/12/09/new-multicampus-consortium-study-assembly-coronaviruses>



Profs. Aji and Gabor receive grant to study quantum photodiodes

The results could lead to improvements in night vision technology and quantum communication networks.

<https://physics.ucr.edu/news/2021/04/30/twisting-atomic-materials-may-convert-light-electricity>



Prof. Gabor leads effort to understand the physical details of photosynthesis

His research on "light harvesting" was published in the prestigious journal Science.

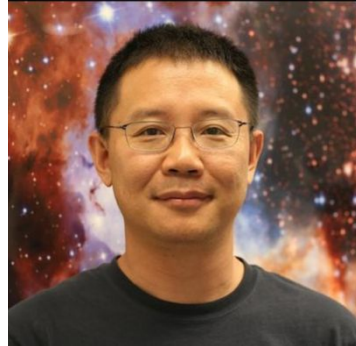
<https://physics.ucr.edu/news/2020/06/25/why-are-plants-green>



Prof. Yu provides an explanation for the depletion of dark matter observed in some satellite galaxies of the Milky Way

The results bolster the hypothesis that dark matter can be self-interacting.

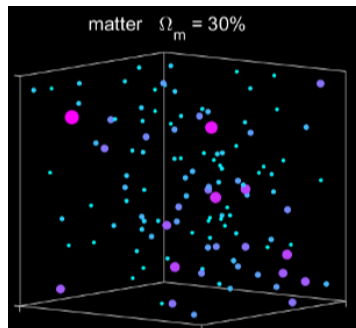
<https://physics.ucr.edu/news/2020/09/09/physicists-explain-mysterious-dark-matter-deficiency-galaxy-pair>



Team led by Prof. Wilson precisely measures the total amount of matter in the universe

The result, based on the observed number and masses of galaxy clusters, accounts for both ordinary and dark matter.

<https://physics.ucr.edu/news/2020/09/28/scientists-precisely-measure-total-amount-matter-universe>



Prof. Long presents search for supersymmetric particles

The study is based on a novel approach, without the usual requirement for so-called missing transverse momentum.

<https://physics.ucr.edu/news/2021/03/10/searching-elusive-supersymmetric-particles>



Prof. Barton co-leads study on how HIV mutates to avoid the immune system

Understanding how HIV evolves can lead to better treatments against the virus.

<https://physics.ucr.edu/news/2020/11/30/new-method-identifies-adaptive-mutations-complex-evolving-populations>



Prof. Sales offers explanation for dark-matter-free dwarf galaxies

Such galaxies can arise through tidal interactions with their host galaxies.

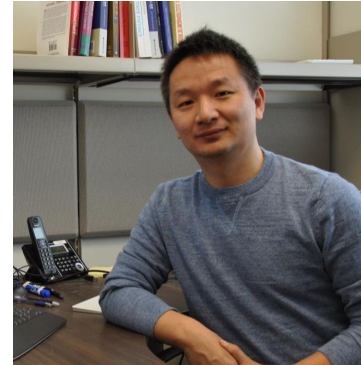
<https://physics.ucr.edu/news/2021/02/09/astronomers-offer-possible-explanation-elusive-dark-matter-free-galaxies>



Prof. Yongtau Cui presents results on Moire patterns

The results demonstrate novel insulating phases of materials.

<https://physics.ucr.edu/news/2021/02/15/moire-patterns-facilitate-discovery-novel-insulating-phases>



Prof. Barsukov uses nanoscale antiferromagnets to control electron spin fluctuations

The results could lead to faster computers.

<https://physics.ucr.edu/news/2021/04/28/researchers-use-nanoscale-synthetic-antiferromagnet-toggle-nonlinear-spin-dynamics>



Outreach

Teaching the teachers: the 2021 Summer Physics Academy moves online

The academy, organized by Prof. Haibo Yu and by Maria Simani, who is the director of the UCR-based California Science Project, hosted 25 high school physics teachers over a 5 day span.

<https://physics.ucr.edu/news/2020/06/24/summer-physics-academy-moves-online-due-pandemic>

Invitation to the 2021 Physics & Astronomy graduate recognition ceremony



The Department of Physics and Astronomy

at the

University of California, Riverside

cordially invites you to attend the

Department Graduation Recognition Ceremony

honoring the candidates for the Bachelor of Science, Masters, and Doctoral degrees

Awards to be given

- Robert L. Wild Family Award: Outstanding 1st year undergraduate student
- R. Stephen White Endowed Fund for Physics Award: Outstanding 2nd year undergraduate student
- R. Stephen White Endowed Fund for Physics Award: Outstanding 3rd year undergraduate student
- Brown Williams Undergraduate Student Award: Outstanding senior undergraduate assistant
- Outstanding teaching assistants
- Benjamin C. Shen Memorial Award: Outstanding 1st year graduate student
- Benjamin C. Shen Memorial Award: Outstanding junior graduate student researcher
- Anne Kernan Award: Outstanding senior graduate student researcher
- Robert T. Poe Memorial Scholarship Award for Outstanding Ph.D. Graduate

Saturday June 12, 2021, 11 a.m.

(to be held online; details to follow in a separate email)



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