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Acosta is a postdoc at HP Labs, where he works on coupling NV centers to optical microcavities to form integrated photonic circuits for quantum computing and sensing. Acosta earned a PhD degree in physics from UC-Berkeley in Dmitry Budker's group. His research focused on the basic physics underlying alkali vapor-cell and NV-based magnetometry. He built the first generation of micron-scale diamond magnetometers,

with an eye toward magnetic resonance imaging of small numbers of spins and mapping of highly localized fields.

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Hemmer received his BS degree in physics from the University of Dayton and his PhD degree in physics from MIT. He worked for many years as a physicist for the Air Force Research Laboratory at Hanscom AFB, Mass. Since 2002, he has been a professor in the ECE Department at Texas A&M University. Hemmer's current

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**David D. Awschalom**

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Awschalom is the Peter J. Clarke Director of the California NanoSystems Institute and a Professor of Physics, Electrical and Computer Engineering at the University of California, Santa Barbara. His group has research activities in optical and magnetic interactions in semiconductor quantum structures, spin dynamics and coherence in condensed matter systems, and implementa-

tions of quantum information processing in the solid state. He received an IBM Outstanding Innovation Award, the MRS Outstanding Investigator Prize and David Turnbull Award, the IUPAP International Magnetism Prize and Néel Medal, the APS Oliver E. Buckley Prize, the EPS Europhysics Prize, and the AAAS Newcomb Cleveland Prize. Awschalom is a Fellow of the APS and AAAS and is a member of the American Academy of Arts and Sciences, the National Academy of Sciences, and the National Academy of Engineering.

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Bassett is a postdoctoral fellow at the University of California, Santa Barbara. He received a BS degree in physics from The Pennsylvania State University and completed the MAST program in mathematics and a PhD degree in physics at the University of Cambridge before moving to UC Santa Barbara in 2009. Some of Bassett's recent work involves using electric fields and

light to coherently control single spins in diamond.

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Buckley is currently a physics graduate student at the University of California, Santa Barbara, advised under Professor David Awschalom. He received his BS degree in mechanical engineering and engineering physics from the University of Nebraska, Lincoln, performing undergraduate research under Professor Roger D. Kirby. His research interests include coherent optical and

spin interactions exhibited by optically addressable defect spins in solids.

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Calusine is a graduate student in the Physics Department at the University of California, Santa Barbara, advised by Professor David Awschalom. He graduated from the University of Pennsylvania in 2007 with a degree in physics and a minor in mathematics. His current research focuses on searching for new defect qubit candidates in materials that are well suited for traditional semiconductor device fabrication.

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Childress is an assistant professor at McGill University in Canada. She performed her doctoral work on NV centers in the group of Professor Mikhail Lukin at Harvard University. In 2007, she joined the faculty at Bates College, where she continued to study nuclear spins in diamond. She spent much of 2011 as a visiting researcher in Professor Ronald Hanson's group before joining Professor Jack Harris' group at Yale University as a postdoctoral associate.

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Faraon is an assistant professor of applied physics and materials science at the California Institute of Technology. He holds a BS degree in physics from Caltech (2004), an MS degree in electrical engineering from Stanford University (2009), and a PhD degree in applied physics also from Stanford (2009). Faraon's interests focus on developing new photonic technologies based on the fundamentals of light matter interaction at the quantum level. He has published over 25 journal articles and co-authored three book chapters.



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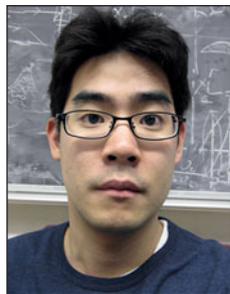
his own group in 2007. Hanson received the QIPC European Young Investigator Award in 2011 and the Oxford Instruments Nicholas Kurti Prize in 2012.



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Pham is an applied physics PhD candidate working with Ronald Walsworth at Harvard University. Her research pursuits include demonstrating NV magnetic field imaging using a CCD-based wide-field microscope, developing techniques for improving NV magnetic field sensitivity, and studying NV spin physics. Pham earned dual BS degrees in physics and computer engineering from Virginia Polytechnic Institute and State University.

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Simpson is a postdoctoral research fellow in the Centre for Quantum Computation and Communication Technology at the University of Melbourne. He obtained his PhD degree in experimental physics from Victoria University in 2008. His research interests include quantum measurement, the material properties of diamond, and optical techniques to address quantum systems. His research is currently focused on wide-field imaging and detection of single spins in biological systems.

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Toyli is currently a PhD candidate in physics at the University of California, Santa Barbara. He received his BS degree in physics from the University of Minnesota, performing undergraduate research in the laboratory of Professor Paul Crowell. His research interests include ion implantation techniques for the generation of single spins in semiconductors and temperature measurement with single spins in diamond.

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Walsworth is a senior physicist at the Smithsonian Astrophysical Observatory and a senior lecturer on physics at Harvard University. He leads an interdisciplinary research group with a focus on developing precision measurement tools and applying them to both the physical and life sciences. Walsworth received the 2005 Francis Pipkin Award from the American Physical Society (APS) for his work on precision measurements, and has been an APS Distinguished Traveling Lecturer since 2002.

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Yacoby holds a bachelor's degree in aeronautical engineering and a master's degree in theoretical physics. His PhD degree in experimental condensed matter physics focused on understanding coherence in mesoscopic systems. Yacoby's interests are in understanding the behavior of low-dimensional systems and their applications to quantum information technology. His current research topics include spin-based quantum

computing and metrology using semiconducting quantum dots, color centers in diamond, and phosphorous spins in silicon; topological quantum computing using HgCdTe quantum wells; and interacting electrons in graphene multilayers.

