

Joe Becker

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Education

- 2015– Present **Doctor of Philosophy**, *Texas A&M University*, College Station, TX.
- Physics
- 2005–2012 **Bachelor of Arts**, *University of Colorado*, Boulder, CO.
- Physics
- 2005–2012 **Bachelor of Arts**, *University of Colorado*, Boulder, CO.
- Mathematics
- 2001–2005 **International Baccalaureate Diploma**, *Poudre High School*, Fort Collins, CO.

Academic Background

- Physics Advanced Physics/Optics Lab, Electronics Lab, Quantum Mechanics, Electricity and Magnetism, Classical Mechanics, Thermodynamics, Error Analysis, Statistical Mechanics, Solid State Physics, General Relativity
- Mathematics Calculus, Mathematical Analysis, ODE & PDE, Complex Analysis, Fourier Analysis, Linear Algebra, Probability Theory, Mathematical Statistics
- Computer Science Data Structures, Algorithms

Research Experience

- 2015– Present **Graduate Research Assistant**, *Texas A&M University*, Professor Aleksei Zheltikov.
- Research into nitrogen-vacancy diamond optically detected magnetic resonances.
- 2014–2015 **Research Assistant**, *National Institute of Standards and Technology*, Scott B. Papp & Scott A. Diddams.
- Researched low noise stimulated Brillouin scattering lasing using silica microrod resonators.
- Whispering gallery mode micro-resonator construction and analysis.
- 2012–2013 **Research Assistant**, *Liquid Crystal Materials Research Center*, Professors Noel Clark, Matthew Glaser, & Joseph Maclennan.
- Designed and conducted scientific measurements on free-suspended liquid crystal films.
- Studied quasi-two-dimensional diffusion constants with liquid crystal island and meniscus interactions.
- 2011 **Summer Internship**, *Tech-X Corporation*, Peter Stoltz Ph.D.
- Conducted a verification study on Nautilus, the fluid plasma modeling software.
- 2006–2008 **Research Assistant**, *University of Colorado at Boulder: High Energy Physics BaBar Group*, Professors James G. Smith & William T. Ford.
- Measured quasi-twobody decays $B^0 \rightarrow a_0(1450)^- \pi^+$, $B^0 \rightarrow a_0(1450)^- K^+$, and $B^0 \rightarrow \eta \rho^0$ for the BaBar collaboration.

Teaching Experience

- 2015 **Teaching Assistant**, *Physics 218: Mechanics*, Texas A&M University, Department of Physics and Astronomy.
- Lead four recitation/laboratory sections of first semester physics.
- Assisted students in problem solving and laboratory techniques.

Publications

- 2016 **S. M. Blakley, A. B. Fedotov, J. Becker, N. Altangerel, I. V. Fedotov, P. Hemmer, M. O. Scully, A. M. Zheltikov**, "*Stimulated fluorescence quenching in nitrogen-vacancy centers of diamond: temperature effects*".
Optics Letters **41**(9):2077 (2016)
- 2016 **W. Loh, J. Becker, D. Cole, A. Coillet, F. Baynes, S. Papp, S. Diddams**, "*A microrod-resonator Brillouin laser with 240 Hz absolute linewidth*".
New J. Phys. **18**(2016) 045001
- 2015 **J. Becker, W. Loh, F. Baynes, D. Cole, F. Quinlan, H. Lee, K. Vahala, S. Papp, S. Diddams**, "*Toward Chip Integrated Ultra-Low-Noise Lasing Using a Microrod Resonator*".
International Frequency Control Symposium 2015
- 2015 **W. Loh, J. Becker, F. Baynes, D. Cole, F. Quinlan, H. Lee, K. Vahala, S. Papp, S. Diddams**, "*Low-Noise Stimulated Brillouin Lasing in a Microrod Resonator*".
Conference on Lasers and Electro-Optics 2015
- 2007 **The BABAR Collaboration, B. Aubert, et al**, "*Search for Neutral B-Meson Decays to $a0\pi$, $a0K$, $\eta\pi\pi0$, and $\eta\pi\pi0$* ".
Phys. Rev D **75**, 111102 (2007)

Relevant skills

OS	Linux/Unix, Windows, DOS	Programming	C/C++, Python, Perl, IDL
Scientific	Matlab, Maple, Mathematica, Matplotlib, LabView, Origin-Pro	Typography	L ^A T _E X, Microsoft Office, Inkscape
Miscellaneous	Precision Machining		