

# 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.

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## 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

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## 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.

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## 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.

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## 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  $a0\pi$ ,  $a0K$ ,  $\eta\pi$ , and  $\eta\pi'$* ".  
*Phys. Rev D* **75**, 111102 (2007)

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## Relevant skills

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