# 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, over all GPA: 3.0/4.0.

2005–2012 **Bachelor of Arts**, *University of Colorado*, Boulder, CO.
- Mathematics, over all GPA: 3.1/4.0.

2001–2005 **International Baccalaureate Diploma**, *Poudre High School*, Fort Collins, CO.

## Academic Background

Physics Advanced Physics/Optics Lab, Junior Level Electronics Lab, Quantum Mechanics, Electricity and Magnetism, Classical Mechanics, Thermodynamics, Error Analysis, 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

2006–2008 **Research Assistant**, *University of Colorado at Boulder: High Energy Physics BaBar Group*, Professors James G. Smith & William T. Ford.
- Preformed data analysis for the BaBar collaboration.
- Measured quasi-twobody decays $B^0 \to a_0(1450)^- \pi^+$, $B^0 \to a_0(1450)^- K^+$, and $B^0 \to \eta\rho^0$

2011 **Summer Internship**, *Tech-X Corporation*, Peter Stoltz Ph.D.
- Conducted a verification study on Nautilus, the fluid plasma modeling software.
- Data analysis using python specifically in the NumPy, SciPy, MatPlotLib environment.

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.
- Data analysis on experimental data using Python, Mathematica, MatLab, & Origin 9

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.
- Created poster and talk for presentation at the International Frequency Control Symposium 2015.

## Teaching Experience

2015–Present **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

2007 **The BABAR Collaboration, B. Aubert, et al**, *"Search for Neutral B-Meson Decays to a0pi, a0K, etarho0, and etaf0"*, Phys. Rev D **75**, 111102 (2007).

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.

## Relevent skills

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| OS | Linux/Unix, Windows, DOS | Programming | C/C++, Python, Perl, IDL |
| Scientific | Matlab, Maple, Mathematica, Matplotlib, LabView, Origin 9 | Typography | LaTeX, Microsoft Office, Inkscape |
| Miscellaneous | Precision Machining | | |