

# Statement of Research and Teaching Interests

Dr. Andrew C. Haas

The near-term future of experimental high-energy physics is without doubt at the LHC, and I would focus my research on the CMS experiment, which Davis is already highly involved in. With high-energy data likely in late 2008, extremely exciting times are right around the corner. As a post-doc with the Columbia ATLAS group, I've already had a chance to contribute to commissioning efforts at a very similar detector and become familiar with similar analyses of simulated data. I would like to become deeply involved in the commissioning of the CMS detector and software, and physics analyses. My goal would be to make sure that myself, and the rest of the group, including students and post-docs, are ready to analyze and understand the first data from CMS, in search of new discoveries. Hopefully what I am interested in at CMS will be greatly influenced by unexpected surprises in the initial data. Otherwise I would likely continue to search for new phenomena such as Supersymmetry, or other more exotic signatures of new physics.

I am also very interested in the prospect of a future International Linear Collider (ILC), and would like to take part in the planning and building of an experiment there. I have greatly enjoyed contributing to the commissioning of the DZero and ATLAS experiments. I think it would be even more rewarding to have a greater impact on the planning of an ILC experiment, by getting involved early in the design phase. I have gained significant experience in calorimetry, tracking / b-jets, and data acquisition and think I could contribute significantly to a detector design. I would also like to work for the possibility of building the ILC here in the United States, possibly at Fermilab, since it seems crucial for sustaining American high-energy experimental physics in the long-term.

The opportunity to teach students is another reason I look forward to having an Assistant Professor position. I believe physics is important and interesting, and I enjoy sharing that viewpoint and excitement with students. Too often, beginning students are not put in contact with the most fascinating ideas of modern physics, such as the Big Bang, quantum mechanics, and particle physics. I would try to find a way to allow more students to learn about these topics in an easy to comprehend, yet not oversimplified manner.

Through Columbia's REU program I've had the opportunity for the past three years to work with undergraduates interested in particle physics. At Davis, I'd continue to try to get more undergraduates interested in experimental particle physics. As a post-doc I've also worked with and advised many graduate students. I look forward to, as a professor, guiding graduate students of my own on their way towards becoming researchers in particle physics.