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W-13 Weapons Systems Analysis
Los Alamos National Laboratory
P.O. Box 1663
Los Alamos, NM 87545

With research experience in modeling complex geometries and developing software for radiation transport simulation and analysis, I believe I am well-suited for the R&D Engineer 2 position in W-13 at Los Alamos National Laboratory. For your consideration, I have submitted a full résumé, summary of my thesis research, and the following summary of skills and experience relevant to this position.

- Bachelor's degree in Chemical Engineering, Master's degree and future Ph.D. in Nuclear Engineering
- Active DOE Q-level security clearance
- Over seven years of experience with MCNP analysis of mesh-based geometries of complex nuclear systems including the ARIES-ACT2 fusion energy device [Pub. 4], computational human phantoms [Pub. 2], weapons systems, and material testing experiments in the Annular Core Research Reactor (ACRR) [Pub. 7]
- Worked as an undergraduate and post-bachelor's intern at LANL with XCP-3 and W-13
- Graduate research has involved the development of computational tools and generation of models for Monte Carlo radiation transport simulations in high performance computing environments [Pub. 2]
- Thesis work is based on the development of an automated variance reduction technique for coupled multi-physics processes occurring in systems that undergo geometry movement 1
- Experience with radiation transport in PARTISN, specifically for generation of the adjoint flux used in adjoint-driven variance reduction techniques
- Use Trelis (Cubit) to generate solid models for radiation transport with DAGMC and Abaqus CAE to generate unstructured mesh models for radiation transport with MCNP6
- Effective member of research teams at LANL and UW, brainstorming approaches to problems, dividing the work, and then independently fulfilling my duties to the teams and customers by ensuring timely execution of deliverables
- Involved in several analysis projects [Pubs. 3, 4] that require the hand calculation of material compositions and geometric quantities to support complex Monte Carlo radiation transport simulations
- LANL Undergraduate Student project centered around validation and verification of the MCNP6 unstructured mesh capability [Pub. 10]
- Experienced in writing scripts to parse MCNP output and plot results as well as writing scripts to prepare mesh geometries for use with DAGMC radiation transport simulations
- Participated in weekly project meetings with external collaborators (NASA and ITER) to develop timelines, review preliminary results, and discuss solutions to technical challenges
- Wrote formal reports to summarize project deliverables to external customers as well as conference papers and presentations to clearly demonstrate utility of software developments and analysis results
- Use conferences and meetings as a means to lead discussions with current and potential customers about the software that my team and I have developed and I look forward to the opportunity to travel to more of these events to network with other scientists and expand my knowledge

After completing my doctoral program, it would be a pleasure to continue my career working on weapons systems for national security applications at LANL. I appreciate your consideration and look forward to hearing from you.

Sincerely,
Chelsea D'Angelo