**Bernard Mason**

School of Chemistry, Cantock’s Close, Bristol, BS8 1TS, UK

T: +44 (0) 117 928 8507, Bernard.Mason@bristol.ac.uk

27th January 2014

Dear Sir/Madam

Further to your advertisement for the position of CIRES/CSD Atmospheric Research Associate, I would like to be considered for this vacancy. I am in my final year of study for my PhD in ‘Optical Properties of Ensemble and Single Aerosol Particles’ at the University of Bristol under the supervision of Professor Jonathan Reid. I have one first author and two co-authored research papers published and expect to have at least two other first author papers before my expected completion date in June 2014. One of my transcripts ‘Deviations from plane-wave Mie scattering for a single spherical particle’ has just been submitted to The Journal of Chemical Physics.

My PhD has focussed on optical, hygroscopic and thermodynamic properties of spherical aerosol particles in the 0.2 to 4 micro-meter diameter range. During the course of my graduate research, I have gained significant experience building, improving and maintaining both ensemble and single particle cavity ring down systems. I have spent a significant amount of time developing a cavity ring down instrument combined with a single particle optical trap ensuring a robust experimental approach and establishing a solid analytical framework for investigating optical properties of single particles. Using this instrument I have studied hygroscopic properties of salt systems, vapour pressures of single component systems and phase separation of multicomponent systems using a multi-level optical approach. In addition I have experience building Bessel beam optical traps and experience operating and analysing data form DMAs and CPCs. My studies have given me a well-rounded theoretical knowledge of the fundamental optics and thermodynamics of aerosol particles as well as the practical experience to make me very well suited for this position.

I think I have the suitable expertise, communication skills, team working skills and practical experience to make me an excellent candidate. I am accomplished in LabVIEW programming language and have experience with written languages such as Python, MATLAB and Scilab. I have built programs to fit data to theory, to organise and process data, to interface with instruments and to collect data in real time.

CIRES an outstanding reputation for its field work and the quality of its research, and I would greatly welcome the opportunity to contribute to its research. In particular I am fascinated by measurements taken with the aircraft cavity ring down spectrometer (Langridge, 2011 and Lack, 2012) and very impressed with the rigour that went into the data analysis. I look forward to the opportunity to meet with you and to discuss the project in greater depth.

Yours sincerely



Bernard J. Mason