

December 11, 2007

Dr. G. Fabbiano
Smithsonian Astrophysical Observatory
60 Garden Street
MS 6
Cambridge, MA 02138

Dear Dr. Fabbiano:

Please accept the attached application for your postdoctoral position advertised in the November 2007 issue of the AAS Job Register. For my thesis (advised by Megan Donahue and Mark Voit), entitled '*Virialization, Entropy, and Feedback in Clusters of Galaxies*', I am studying the coupling of feedback mechanisms – such as AGN, star formation, and conduction in cluster cores – to gas entropy, and the role of this feedback in altering global ICM properties and truncating the high mass end of the galaxy luminosity function. I have also been studying a method for quantifying the virialization state of clusters through the band dependence of X-ray temperatures. For my thesis I assembled a sample of 350 archival *Chandra* observations for 276 clusters totaling 11.6 Msec of data. The results of this laborious effort have been many and are detailed in my research summary.

I am a great research asset for any X-ray astronomer because of my extensive experience with X-ray data, innovative technical skills, and ability to independently advance the group's and my own research objectives. I feel the post-doctoral position under your advisory at SAO is an excellent fit for me, and your research goals will benefit from my addition. My expertise in X-ray astronomy ideally suits me to further work on better understanding AGN, models of galaxy formation, and the effect of feedback in shaping galaxy and cluster properties. As our understanding of feedback mechanisms in clusters improves, additional focus must be paid to these same processes in groups and individual galaxies if we are to have a complete understanding of hierarchical structure formation.

Along with this letter are my resumé, a summary of past and current research, and a brief description of possible research directions. Letters of recommendation from Megan Donahue, Mark Voit, and Jack Baldwin are available at anytime via their contact information provided in my resumé. Please contact me if there is any further information I can provide as you review my application.

Thank you for your consideration.

Sincerely,

A handwritten signature in black ink, appearing to read 'Ken Cavagnolo', written over a light blue rectangular background.

Kenneth W. Cavagnolo
Michigan State University