

January 16, 2008

Dr. J. S. Mulchaey
Carnegie Observatories
813 Santa Barbara Street
Pasadena, CA 91101

Dear Dr. Mulchaey:

Please accept the attached application for your postdoctoral position in X-ray astronomy advertised in the December 2007 issue of the AAS Job Register. For my thesis (advised by Megan Donahue and Mark Voit), entitled '*Feedback, Evolution, and Dynamics in Galaxy Clusters*', 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 asset for anyone studying active galaxies and clusters both for my technical skills and to furthering their research objectives. I feel the post-doctoral position under your advisory at Carnegie 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 for galaxy formation, and feedback in clusters. Adaptation of my skill sets to study clusters in the radio, optical, and infrared is the next step in my career and should come with a short learning curve thanks to my existing, mature programming ability.

Along with this letter are my CV, 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 should already have arrived under separate cover. Please do not hesitate to 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 gray rectangular background.

Kenneth W. Cavagnolo
Michigan State University