

**Proposal for *Chandra* Observations**

**Cycle 11**

Cover Page

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<b>Proposal Title</b> How much of the trend in O star X-ray spectral hardness is due to wind absorption?			
<b>Subject Category</b> STARS AND WD			
<b>Proposal Type</b> ARCHIVE	<b>Linked Proposal</b> N	<b>Distr. Medium</b> WWW ONLY	<b>Proprietary Rights</b> N
<b>Total Requested Time</b> 0.00	<b>Number of Targets</b> 0		<b>Proposed Budget</b> 98.000

<b>Joint Proposal?</b>			
<b>HST Orbits</b>	<b>HST Instruments:</b>		
<b>XMM Time</b>	<b>Spitzer Time</b>	<b>Suzaku Time</b>	
<b>NOAO Nights?</b>	<b>NOAO Telescope/Instruments:</b>		
<b>NRAO Hours</b>	<b>NRAO Telescopes</b>		

<b>Abstract</b>		
<p>One of the most surprising results from Chandra has been the detection of a trend in X-ray hardness with O star spectral subtype (Walborn 2006). If this trend, is due to an ionization or temperature effect, it would pose a stark challenge to the dominant wind-shock paradigm of X-ray production in massive stars. The wind-shock paradigm, however, does predict that X-ray attenuation by the bulk wind should increase with the effective temperature of the star. Here we propose to fit, for the first time, a physically realistic model of wind attenuation to the Chandra grating spectra of 14 massive stars in order to robustly determine the relative importance of wind absorption and plasma temperature in establishing the observe trend in X-ray spectral hardness.</p>		
Proposal Number	Date: 2009-03-17	Admin. use only

General Form

<b>PI</b> Prof. David H. Cohen		
<b>Proposal Title</b> How much of the trend in O star X-ray spectral hardness is due to wind absorption?		
<b>Co-Investigator(s)</b>		
<b>First Name Last Name</b>	<b>E-Mail Institute</b>	<b>Country</b>
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Are there additional Co-Is listed in the science justification?    N		
Is the first Co-I doing observing, rather than the PI?    N    Telephone:		

**Institute Endorsement**

<b>Name of Administrator</b>	Constance Hungerford
<b>Administrative Authority</b>	Provost
<b>Administrative Institute</b>	SWARTHMORE COLLEGE
<b>Admin Signature:</b>	<b>Date:</b>
<b>PI Signature:</b>	<b>Date:</b>