



Universität Heidelberg  
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## Invitation

### Special Colloquium

Maryam Modjaz

(Univ. California, Berkeley):

### **“Elucidating the Supernova-GRB Connection: Metallicities and Host Galaxy Properties.”**

on Friday, March 14th, 2008, 2.30 p.m.

in the Seminarraum of the Astronomisches Rechen-Institut

E. Grebel

#### Abstract:

Supernovae of Type Ib/c are core-collapse supernovae whose massive progenitors have been stripped of progressively larger amounts of their hydrogen and helium envelopes. While the link between long-duration Gamma-Ray Bursts (GRBs) and Type Ic supernovae is now well established, we still do not fully understand the conditions that produce each kind of stellar explosion.

I will present a selection of very well time-sampled optical and near-infrared data of SNe Ib/c that will double the world-supply of well-observed events. I will discuss their implications for the SN-GRB connection. In particular I will show clues that asphericity is common during the explosion of even normal SNe Ib/c and not an exclusive property of SN-GRB. Furthermore, I will discuss the host-galaxy environments and the metallicities of the sites of SN with and without observed GRBs, and their implications for GRB progenitor scenarios. Though the sample size is small, the observations are consistent with the hypothesis that low metal abundance is the main cause of some very massive stars becoming SN-GRB. I will conclude with the most promising venues of upcoming research that can clarify how massive stars die.