HIGH RESOLUTION SPECTROSCOPY OF THE LMC SUPERNOVA REMNANTS N103B AND DEM L 71 USING XMM-NEWTON

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The XMM-Newton Reflection Grating Spectrometers have an unmatched capability to perform high resolution spectroscopy of sources of a moderate (<2 arcminutes) angular extent. This capability is well matched to the typical angular sizes of supernova remnants in the Large Magellanic Cloud. We present XMM-Newton observations of the Large Magellanic Cloud supernova remnants N103B and DEM L 71. These remnants encompass different evolutionary phases varying from a few thousand to ten thousand years. The XMM-Newton grating spectra of both remnants are dominated by well resolved, bright emission lines. In contrast, previous and current CCD spectra only reveal these lines in the form of weak unresolved line complexes. Detailed analysis of these emission lines in combination with their X-ray morphologies, as supplied by the Chandra-ACIS observations, indicates that the alleged type Ia designation of the remnants need to be challenged. The Fe-K complex in N103B indicate the presence of very recently (few hundred years) shocked heated material. The implications of these results are discussed.