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Session 45. Stellar Coronae/Cataclysmic Variables
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[45.03] Stellar Coronal Spectroscopy with the XMM-Newton RGS

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High resolution X-ray spectroscopy opens new windows to the study of the structuring and energetics of stellar coronae. XMM-Newton has obtained excellent spectra of several stellar coronal sources (e.g., HR1099, Capella, YY Gem, and AB Dor) with its two Reflection Grating Spectrometers (RGS). These sources represent coronae of various activity levels, comprising a wide range of plasma temperatures. Several flares were observed in the course of the observations for which time-resolved RGS spectroscopy will be presented. The RGS spectra offer important diagnostics to probe properties of the coronal plasma. The large number of detected lines from various elements offer the possibility to determine emission measure distributions between approximately 1-20 MK. He-like triplets further provide information on electron densities at various temperatures. Coronal elemental abundances are found to vary between quiescent and flare states. Abundance anomalies may shed light on the coronal heating mechanism. We discuss implications from spectral modeling on coronal structuring, including the size of coronal structures, the abundance stratification, and possible optical depth effects. We complement this information with geometric modeling obtained from stellar eclipses and rotational modulation. Implications for the coronal heating scenario are discussed.