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Hard X-ray RIXS studies of rare earth hexaborides JASON HANCOCK, ERIN CURRY, VINCENT FLYNN, SAHAN HANDUNKANDA, Univ of Connecticut - Storrs, IGNACE JARRIGE, Brookhaven National Laboratory, JIANXIN ZHU, Los Alamos National Laboratory, MAXIM DZERO, Kent State University, PRISCILLA ROSA, ZACHARY FISK, Los Alamos National Laboratory — We present a rare-earth L_3 resonant inelastic X-ray scattering f divalent hexaborides RB_6 with R=Sm, Yb and compare existing data on X=Eu. In YbB_6, we find enhanced RIXS intensity at resonances not near the divalent absorption peak and interpret the nature of the generated excitations with the aid of electronic structure calculations. In addition, we find RIXS signal generated at a well-defined resonance several eV higher that it not observed in absorption and suggest a physical origin of this enhanced resonance-free RIXS signal.

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