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Atmospheric characterization of super-Jovian exoplanets through the high-res eyes of CRIRES and KPIC

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High-resolution spectroscopy (R > 30,000) provide great opportunities to carry out detailed atmospheric characterization of directly imaged exoplanets. Ongoing spectral surveys using state-of-the-art facilities including VLT/CRIRES+ and Keck/KPIC have been highlighting the power of this technique in measuring chemical and isotopic composition, radial velocity and spin of gas giant planets. I will present new spectral characterization on two super-Jupiter systems, YSES 1 b & c and HIP 99770 b, observed with CRIRES+ and KPIC respectively, as part of these surveys. The results on YSES 1 b & c, constraining chemical abundances and spins of two super-Jupiters within the same system, provide a uniform comparison of formation and evolution history of giant planets. HIP 99770 b with reliable mass constraint from astrometric acceleration is a great testbed for retrieval modeling. These results showcase the capability of characterizing faint (K_{mag}~18) or close (sma~17 au) super-Jupiters using ground-based facilities.