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## Results on resonant few-body interactions obtained within RySQ program

**Abstract:** After an introduction on Rydberg atom physics I will briefly remind our oldest results on a 4-body resonant interaction in a gas of cold Rydberg atoms of cesium. I will then present in details our latest results obtained, within the RySQ program, on a general few-body interaction scheme and explain possible applications. I will finish by presenting our new experiment on ytterbium atoms which aims at using their 2 valence electrons to expand the possible experimental tools in the study of cold Rydberg gases.