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Recent studies of submillimetre galaxies (SMGs) in the COSMOS field: physical properties and environment of $z > 4$ SMGs and new PdBI 1.3 mm follow-up study of a sample of JCMT/AzTEC-detected SMGs

The so-called submillimetre galaxies (SMGs) represent very dusty starbursting systems where the formation of stars takes place at extreme rates of $\sim 100 - 1000 M_{\odot} \text{ yr}^{-1}$. Submillimetre galaxies are found to be promising candidates of being the progenitors of massive red-and-dead elliptical galaxies found in the present-day universe. Therefore, observational studies of SMGs can provide important constraints on models of galaxy formation and evolution as a function of cosmic time.

We have recently carried out a study of the physical characteristics and environment of a sample of six SMGs in the Cosmological Evolution Survey (COSMOS) field that lie at spectroscopically confirmed redshifts $z > 4$ (V. Smolčić et al., submitted to A&A). In this talk I will present the main results of this study. In the second half of my presentation I will present the first results of our new Plateau de Bure Interferometer (PdBI) 1.3 mm dust continuum imaging of a sample of 15 SMGs drawn from the COSMOS-JCMT/AzTEC 1.1 mm dust continuum survey (PI: V. Smolčić; O. Miettinen et al., A&A, in preparation). In both of the above mentioned studies we have employed the Jansky VLA 10 cm radio continuum imaging of the COSMOS field (PI: V. Smolčić), and some of our targets sources are/will be observed with the ALMA interferometer (PIs: M. Aravena, D. A. Riechers, A. Karim).