Archeops: an instrument for present and future cosmology

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on behalf of the Archeops Collaboration includes scientists from Caltech (USA), Cardiff Univ., CESR (Toulouse), CSNSM (Orsay), CRTBT (Grenoble), IAS (Orsay), IAP (Paris), IROE (Firenze, Italy), ISN (Grenoble), JPL (USA), LAL (Orsay), LAOG (Grenoble), Landau Institute (Russia), La Sapienza Univ. (Roma, Italy), LAOMP (Toulouse), Maynooth Univ. (Ireland), Minnesota Univ. (USA), PCC (Paris), SPP (Saclay)

abstract is a balloon-borne instrument dedicated to measure the cosmic microwave background (CMB) temperature anisotropies. It has, in the millimetre domain (from 143 to 545 GHz), a high angular resolution (about 10 arcminutes) in order to constrain high $\ell$ multipoles, as well as a large sky coverage fraction (30%) in order to minimize the cosmic variance. It has linked, before WMAP, large angular scales to the first acoustic peak region. From its results, inflation motivated cosmologies are reinforced with a flat Universe ($\Omega = 1$ within 3%). The dark energy density and the baryonic density are in very good agreement with other independent estimations based on supernovae measurements and big bang nucleosynthesis. Important results on galactic dust emission polarization and their implications for are also addressed.