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Bat 713, salle de séminaires Galilée , CEA Saclay, Orme des Merisiers

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CFHT, Hawaii

EXPLORING THE LOW SURFACE BRIGHTNESS UNIVERSE AT CFHT WITH MEGACAM: TECHNIQUE, SCIENCE APPLICATIONS & PRETTY IMAGES

Inspired from NIR imaging techniques, Elixir-LSB is a new observing mode & pipeline developed for CFHT's optical imager MegaCam to study faint extended astronomical sources. Large efforts were poured into optimizing the MegaCam data processing over the years to serve the point source and field galaxy type of science, delivering today a photometry at the percent level across the 1 degree field of view. Photometry for objects larger than a few arcminutes was however challenging due to the presence of a large scale radial structure in the background. Elixir-LSB aims at removing this structure and achieves a flattening of the sky background down to $28.5 \text{ mag/arcsec}^2$ in the g' band (~ 7 magnitudes fainter than the sky background). The development effort was triggered by the Next Generation Virgo Survey requirement to derive precise photometry over extended and faint galaxies. The technique has found several usages since from the Local Group to the distant Universe. The lecture will cover the technique which will be illustrated by various examples (profiles, stellar streams, shells, ICL, ISM). The technique proves also extremely useful to produce beautiful astronomy images as part of the Hawaiian Starlight outreach effort. Two third of the 2012 CFHT/Coelum astronomy calendar images are derived from Elixir-LSB processing.