
Planck and the large scale structures: unveiling extreme populations at $z > 2$?

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Résumé

Planck covers the whole sky at submm frequencies, allowing for the first time a systematic search of "cold" (or "red") objects, potentially located at $z > 2$. We produced a list of hundreds of high- z Planck candidates, searched as cold spots of the Cosmic Infrared Background, and followed-up more than 200 of those with Herschel SPIRE. The average sky density is one source per 30 Sq. Deg., rare enough to have been missed by most surveys.

While the analysis is still ongoing, it becomes clear that we have many interesting sources. Some are lensed sources (see N. Nesvadba's talk) and most of others are concentrations of red sources compatible with $z > 2$ SEDs. These could be highly star forming concentrations (we call them overdensities) as well as line-of-sights effects. We report a few identifications, all at $z > 1.7$.

This possible new population, still to be confirmed, could be a key to understand the formation of galaxy clusters while caught in their phase of intense star formation. ALMA could obviously not only confirm those hypotheses, but give exquisite details on the physical content and processes at play in those enigmatic structures.

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