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Study of the physical properties of strong gravitational lens candidates in the sub-mm through SED analysis

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Submillimeter galaxies (SMGs) are a population of high-redshift, dust-obscured galaxies with high star-formation rates and a steep number of counts, making them crucial for understanding galaxy formation and evolution. This study investigates the physical properties of 68 candidate gravitationally lensed SMGs at z > 1.2 from the Herschel-ATLAS catalog, along with their associated lenses at lower redshifts. Lens selection is performed based on the close proximity of the H-ATLAS sources to elliptical galaxies in the AllWISE catalog, identified using a WISE color-color diagram classification. Our primary objective is to examine the potential magnification of the background SMGs and to evaluate the effectiveness of this selection method for identifying new lenses. To achieve this, we perform SED fitting on the ultraviolet to far-infrared emission of the candidates using the CIGALE fitting code, analyzing the lens and the SMG components separately to derive statistical conclusions about their properties

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