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Moduli stacks of genus one (Gorenstein) curves with projective good moduli spaces

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The search for alternative compactifications of the moduli space of smooth curves has been central in the panorama of moduli spaces. A possible way to construct such compactifications is allowing curves with worse-than-nodal singularities in the moduli problem and imposing some stability conditions using the combinatorics of the curves to get the desired moduli space. We classify the open substacks inside the moduli stack $\mathcal{G}_{1,n}$ of n -pointed Gorenstein curves of genus one which admits a proper good moduli space. They agree with those defined by Bozlee, Kuo and Neff. Moreover, we will prove that these spaces are actually projective and we will explain why the classification is a consequence of a wall-crossing phenomenon. This is a on-going project with Luca Battistella and Andrea Di Lorenzo.

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