

Accepted Manuscript

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David Arnas, Daniel Casanova, Eva Tresaco

PII: S0094-5765(17)30280-1

DOI: [10.1016/j.actaastro.2017.10.017](https://doi.org/10.1016/j.actaastro.2017.10.017)

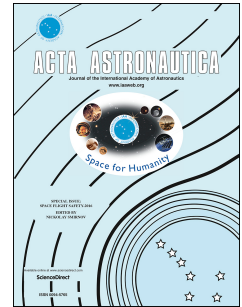
Reference: AA 6507

To appear in: *Acta Astronautica*

Received Date: 24 February 2017

Revised Date: 19 September 2017

Accepted Date: 12 October 2017



Please cite this article as: D. Arnas, D. Casanova, E. Tresaco, 2D Necklace Flower Constellations, *Acta Astronautica* (2017), doi: 10.1016/j.actaastro.2017.10.017.

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2D Necklace Flower Constellations

David Arnas^{1,*}

Centro Universitario de la Defensa, Zaragoza, Crta. Huesca s/n, 50090 Zaragoza, Spain.

Daniel Casanova²

Centro Universitario de la Defensa, Zaragoza, Crta. Huesca s/n, 50090 Zaragoza, Spain.

Eva Tresaco³

Centro Universitario de la Defensa, Zaragoza, Crta. Huesca s/n, 50090 Zaragoza, Spain.

Abstract

The 2D Necklace Flower Constellation theory is a new design framework based on the 2D Lattice Flower Constellations that allows to expand the possibilities of design while maintaining the number of satellites in the configuration. The methodology presented is a generalization of the 2D Lattice design, where the concept of necklace is introduced in the formulation. This allows to assess the problem of building a constellation in orbit, or the study of the reconfiguration possibilities in a constellation. Moreover, this work includes three counting theorems that allow to know beforehand the number of possible configurations that the theory can provide. This new formulation is especially suited for design and optimization techniques.

Keywords: Space Mechanics, Satellite Constellation Design, Number Theory, Optimization Techniques

*Corresponding author

Email address: darnas@unizar.es (David Arnas)

¹GME - IUMA - Universidad de Zaragoza, Spain.

²GME - IUMA - Universidad de Zaragoza, Spain.

³GME - IUMA - Universidad de Zaragoza, Spain.

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