

# A Monster Tower Approach to Goursat Multi-Flags

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We consider here the problem of classifying orbits of an action of the diffeomorphism group of 3-space on a tower of fibrations with  $P^2$ -fibers that generalize the Monster Tower due to Montgomery and Zhitomirskii. As a corollary we give the first steps towards the problem of classifying Goursat 2-flags of small length. In short, we classify the orbits within the first four levels of the Monster Tower and show that there is a total of 34 orbits at the fourth level in the tower.

Comments: Documents has 30 pages, and it contains 7 figures. We have also included two appendices detailing some computations which appeared in the main text

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MSC classes: 58Dxx, 58Kxx

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