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## GRAVITY-BASED STRUCTURE ANALYSIS OF THE MOLECULAR CLOUD ORION A

HRISTIYAN MIHAYLOV<sup>1</sup>, ORLIN STANCHEV<sup>1</sup>

<sup>1</sup>*University of Sofia, Faculty of Physics, 5 James Bourchier Blvd.,  
1164 Sofia, Bulgaria*

E-mail: mihaylov@phys.uni-sofia.bg

Gravity is a long-range interaction and plays important roles in most astrophysical processes in the molecular clouds, at a multiple of physical scales. To understand the importance of gravity at different scales and to provide a global picture of gravity in clouds we apply the G-Virial method (Guang-Xing Li et al., 2015) to two star forming regions Orion A and Perseus. G-Virial is also the name of a physical quantity, which is a measure of the gravitational boundedness of a system of particles. The G-Virial method takes in <sup>13</sup>CO(1-0) data cubes as input and generates G-Virial maps, thus it offers a robust approach to decomposing the data into different regions which are gravitationally coherent. We found an increase in the importance of gravity towards the centers of the individual molecular condensations. We also quantified the properties of the regions in terms of mass-radius and mass-velocity relations. Evaluating the virial parameters based on the G-virial can be used for diagnostics for gravitational boundedness at different physical scales in the clouds.