

*Disturbing body XIII. Developments of the Mean Anomaly  $g'$  of the  
.Theory and  $\cos mg'$ ,  $\sin mg'$  in the sectorial Regularized*

## **Abstract**

In this paper of the series, the fourth step of the sectorial regularized theory will start by establishing the exact literal analytical expressions for  $g'$  and the doubly trigonometric series representations of  $\cos mg'$  and  $\sin mg'$  where  $m$  positive integer. Moreover, some recurrence formulae are also established to facilitate digital computations for the coefficients of the series representations of  $\cos mg'$  and  $\sin mg'$ . All the formulations, developed in the paper are general in the sense that they are valid whatever the types and the number of sectors forming the divisions situation of the elliptic orbit may be. In addition they are also valid during any revolution of the perturbed body in its Keplerian orbit. Finally, we include some numerical results for the coefficients of the trigonometric series representations of  $(\theta, \phi)$  (are the sectorial variables) to provide test examples for constructing computational algorithms.