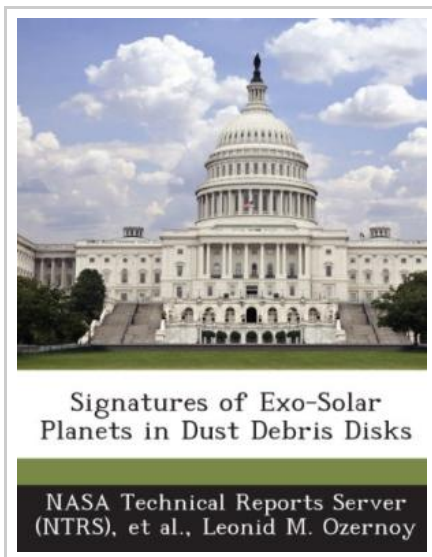




Signatures of Exo-Solar Planets in Dust Debris Disks (Paperback)

By Leonid M Ozernoy

Bibliogov, United States, 2013. Paperback. Condition: New. Language: English . Brand New Book ***** Print on Demand *****. We have developed a new numerical approach to the dynamics of minor bodies and dust particles, which enables us to increase, without using a supercomputer, the number of employed particle positions in each model up to $10(\exp 10) - 10(\exp 11)$, a factor of $10(\exp 6) - 10(\exp 7)$ higher than existing numerical simulations. We apply this powerful approach to the high-resolution modeling of the structure and emission of circumstellar dust disks, incorporating all relevant physical processes. In this Letter, we examine the resonant structure of a dusty disk induced by the presence of one planet of mass in the range of $(5 \times 10(\exp -5) - 5 \times 10(\exp -3))M$. It is shown that the planet, via resonances and gravitational scattering, produces (i) a central cavity void of dust; (ii) a trailing (sometimes leading) off-center cavity; and (iii) an asymmetric resonant dust belt with one, two, or more clumps. These features can serve as indicators of planet(s) embedded in the circumstellar dust disk and, moreover, can be used to determine the mass of the planet and even some of its orbital...



READ ONLINE
[6.13 MB]

Reviews

This book is definitely worth acquiring. I have go through and so i am certain that i will likely to read through again again in the future. Its been printed in an exceptionally basic way in fact it is only after i finished reading this publication in which actually altered me, change the way in my opinion.

-- **Andres Bashirian**

Comprehensive guide for publication fanatics. This really is for all who statte there had not been a well worth reading through. I discovered this ebook from my dad and i encouraged this book to find out.

-- **Lacy Goldner**