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QUANTUM LOCKING AND THE MEISSNER EFFECT LEAD TO THE ORIGIN AND STABILITY OF THE SATURN RINGS. PARTICLES ARE COMING TO THE MAGNETIC EQUATOR PLANE FROM THE PROTOPLANETARY CLOUD

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It is demonstrated how superconducting iced particles of the protoplanetary cloud of Saturn are coming to magnetic equator plane and create the stable enough rings disk. There are two steps. First, after appearance of the Saturn magnetic field due to Meissner phenomenon, all particles orbits are moving to the magnetic equator plane. Finally they become to be distributed as rings and gaps like iron particles around magnet on laboratory table. And particles are separated from each other by the magnetic field expelled from them. It takes up to few tens of thousands years with ten meters rings disk thickness. Second, because of quantum locking all particles become to be locked within three-dimensional magnetic well at the magnetic equator plane due to Abrikosov vortex for superconductor. It works even when particles have small fraction of superconductor. During the rings evolution some contribution to the disk also could come from the collision-generated debris of the current moon, coming meteorites and from the geysers like it happened due to magnetic coupling of Saturn and Enceladus. The rings are relict of the early days of the magnetic field of Saturn system.

BIOGRAPHY

Vladimir V Tchernyi has completed his PhD in Radiophysics from Rostov-on-Don University, Russia and Doctor of Science from the Institute of Radio-Engineering and Electronics, Russian Academy of Sciences, Moscow. He used to work at EECS of University of California at Berkeley and General Physics Institute, Russian Academy of Sciences, Moscow. He is the Director of Modern Science Institute, SAIBR in Moscow. He has published more than 200 papers in reputed journals, including twenty on Saturn rings origin and a few books.

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