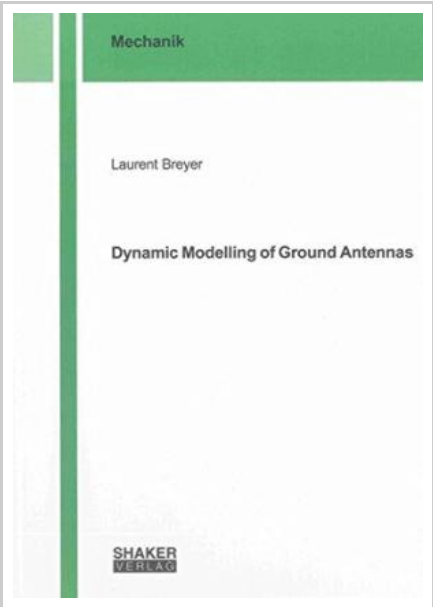

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Dynamic Modelling of Ground Antennas

By Laurent Breyer

Shaker Verlag Jun 2012, 2012. Buch. Book Condition: Neu. 21x14.8x cm. Neuware - In this thesis three simulation models of a GALILEO ground antenna are developed. The model range starts with a simple coupled two-mass oscillator system, goes further to a linear flexible model for small antenna deformations and finally ends at a hybrid multi-body model with full dynamic support and including the non-linear gyroscopic effects. Two flexible antenna drive train models are introduced. The first one uses finite elements and is coupled with the linear flexible antenna model. The second model simulates large dynamic antenna movements and is connected to the hybrid multi-body model. Both drive train models use many degrees of freedom to emphasize their flexible nature. The validation of the simulation models is a major part of this work. With the help of the experimental modal analysis and the sine sweep testing the dynamic properties of the GALILEO antenna are measured. The test data are used to validate the simulation models. The first chapter starts with a short introduction followed by the motivation of the project. Subsequently, the characteristics and specifications of the GALILEO ground antenna are highlighted. The second chapter deals with the theoretical background of...

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