



## Navigation of Satellite Clusters

By Jeffrey S. Davis

Biblioscholar Nov 2012, 2012. Taschenbuch. Book Condition: Neu. 246x189x5 mm. This item is printed on demand - Print on Demand Neuware - The relative position determines of a cluster of satellites in near circular orbit was investigated in previous thesis work. The purpose of this thesis is to extend the concept to cover absolute position determination. A Bayes filter is used for the estimator with dynamics based on the two-body problem extended to account for J2 perturbations. Measurements consist of combining Global Positioning System (GPS) data for each satellite and range data between the satellites. Simulations were conducted investigating the accuracy obtainable when combining the measurements for input into the filter. Performance results consist of comparing the magnitude of the true error to the filter covariance as a function of time. True errors are also compared to minimum accuracy requirements for a space-based radar. The filter encountered numerical difficulties due to the extreme accuracy requirements and proved unsuccessful in providing usable estimates. The results suggest separating the absolute and relative problems. 90 pp. Englisch.



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