

MATERIALS AND STRUCTURES SYMPOSIUM (C2)
New Materials and Structural Concepts (4)

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NANOMETER WAVE-ADSORBED MATERIALS AND THEIR APPLICATION IN
ELECTROMAGNETIC COMPATIBILITY OF SPACEFLIGHTS

Abstract

In miniaturization design and manufacture of satellite, electromagnetic compatibility of electrical devices in spaceflights is a big problem. Therefore, using self-assembly method, ordered mesoporous silica thin films were synthesized; then, using mutual action of groups, nanometer materials which could be wave-absorber-such like iron and nickel-into mesopores, and nanometer materials which had high adsorbing efficiency were been prepared. After measurements on electromagnetic capability of the nanometer materials, we discovered that: peak position of the materials' adsorbing frequency related with size of the materials, wave-absorber materials could be prepared by composition of materials that had different pore size, and which also had such advantages like low quality, thin thickness, uniform distributing and wide absorbing spectrum. Because very segment of electromagnetic frequency can be adsorbed by very design of nanometer structure, the materials have broad foreground of application, especially in solvent of electromagnetic compatibility of spaceflight's miniaturization; furthermore, the materials can also used at invisible spaceflight and others.