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**S E M I N A R**  
**aus**  
**Halbleiterphysik und Nanotechnologie**

**Di, 09.01.2018, 13:00 Uhr**, Hörsaal Elektrotechnik

**“New materials from old stuff - from paper fines,  
cellulose xanthate and trimethylsilyl cellulose to  
optoelectronics and energy storage systems”**

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The talk summarizes our recent achievements in the preparation of new materials from a variety of cellulose based resources. In the beginning of the talk, the emphasis is on fines and how energy storage materials such as supercapacitors with excellent performance using organic electrolytes can be obtained. In the second part of the talk, the focus is directed towards cellulose based thin films. A new cellulose based thin film system based on cellulose xanthate is introduced which can be converted to cellulose using vapors of HCl or trifluoroacetic acid. The resulting films have been used to manufacture a sandwich structure consisting of two cellulose layers (ca 100 nm) which embed a conducting metal sulfide layer (20 nm). The last part of the talk will deal with the use of trimethylsilyl cellulose as a matrix material to control the growth of semiconducting metal sulfide nanoparticles in the films. The manufacturing of a thin film solar cell using a TMSC/CIS photoactive layer and its photoelectrical properties will be presented.