



## Carbon Fibre Reinforced Composites for the Tuning Structure of LHC RF Cavities

By Gero Pflanz

Diplom.De Jun 1997, 1997. Taschenbuch. Book Condition: Neu. 210x148x8 mm. This item is printed on demand - Print on Demand Titel. Neuware - Diploma Thesis from the year 1997 in the subject Materials Science, grade: 1,0, Technical University of Braunschweig (Unbekannt), language: English, abstract: Inhaltsangabe:Abstract: The suitability of different materials for the tuning structure of the LHC rf cavities is evaluated. The structure spanning the temperature interval from room to cryogenic is subjected to mechanical loading, and radiation. A filament wound tube reinforced with high-strength carbon fibres is considered to be most appropriate. Design calculations are performed using laminate theory. The safety margin for a cylindric filament wound tube under the given mechanical and thermal loading conditions is calculated for different winding angles. The calculations indicate that the thermal load is causing shear and transverse stresses which are more critical than the stresses due to the mechanical load. A fatigue test is performed with a prototype tube under thermal and mechanical working conditions as they are estimated for LHC. Before and after the fatigue test, non-destructive testing methods (ultrasonic examination, microscopy, and geometry measurements) are employed to evaluate the material condition before and after the fatigue test. All three non-destructive...



**READ ONLINE**  
[ 7.41 MB ]

### Reviews

*A superior quality publication and the font employed was exciting to read through. It is among the most awesome book i have read. I am effortlessly could get a enjoyment of reading a created publication.*

-- **Ettie Kutch**

*This kind of pdf is every little thing and made me seeking ahead of time plus more. It generally will not price excessive. You will not truly feel monotony at anytime of the time (that's what catalogues are for concerning should you request me).*

-- **Dr. Rosie Kuphal**