Berichte aus der Astronomie

Isabel Llamas Jansa

Experimental Study of the Optical and Structural Properties of Carbon Nanoparticles

Shaker Verlag
Aachen 2006

Bibliographic information published by Die Deutsche Bibliothek
Die Deutsche Bibliothek lists this publication in the Deutsche Nationalbibliografie; detailed bibliographic data is available in the internet at http://dnb.ddb.de.

Zugl.: Jena, Univ., Diss., 2006

Copyright Shaker Verlag 2006
All rights reserved. No part of this publication may be reproduced, stored in a retrieval system, or transmitted, in any form or by any means, electronic, mechanical, photocopying, recording or otherwise, without the prior permission of the publishers.

Printed in Germany.

ISBN-10: 3-8322-5063-8
ISBN-13: 978-3-8322-5063-8
ISSN 0947-7756

Shaker Verlag GmbH • P.O. BOX 101818 • D-52018 Aachen
Phone: 0049/2407/9596-0 • Telefax: 0049/2407/9596-9
Internet: www.shaker.de • eMail: info@shaker.de

Experimental Study of the Optical and Structural Properties of Carbon Nanoparticles

PhD. Thesis

Dr. Isabel Llamas Jansa

For the first time an extensive and systematic study of the extinction properties of hydrogenated amorphous carbon (HAC) nanoparticles has been carried out in the wide wavelength range between the near-infrared (NIR) and the far-ultraviolet (FUV). The scattering contribution to the extinction of these HAC products has been evaluated both by direct measurements and theoretical approaches. Additional information on the C-H bonding configuration of the samples has been evaluated by Fourier transform infrared spectroscopy (FTIR) in the mid-infrared (MIR) range. The spectral data have been complemented by transmission electron microscopy (TEM) imaging at low- (80 KV) and high-resolution (300 KV) modes.