The Royal Society is collaborating with JSTOR to digitize, preserve, and extend access to Proceedings of the Royal Society of London. Series A, Mathematical and Physical Sciences.
Notice to contributors

The Royal Society welcomes suitable communications for publication in its scientific journals: papers estimated to occupy up to 24 printed pages are considered for the Proceedings and longer papers and those with numerous or large illustrations for the Philosophical Transactions.

Detailed advice on the preparation of papers to be submitted to the Society is given in a leaflet available from the Executive Secretary, The Royal Society, 6 Carlton House Terrace, London SW1Y 5AG. The 'Instructions to authors' are also printed in every fifth volume of the Proceedings A and B (volume numbers ending in 0 or 5). The basic requirements are: a paper should be as concise as its scientific content allows and grammatically correct; standard nomenclature, units and symbols should be used; the text (including the abstract, the list of references and figure descriptions) should be in double spaced typing on one side of the paper. A leaflet giving detailed advice on the preparation of illustrations is available from the Executive Secretary; diagrams should be expertly drawn at about twice the proposed final size, preferably with lettering in the correct style but if this is not possible the lettering should be inserted not on the original drawings but on a set of copies; where photographs are essential the layout should be designed to give the most effective presentation.

The initial submission of a paper must be through a Fellow or Foreign Member of the Society, but subsequent correspondence will be conducted direct with the author. The latest lists of Fellows and Foreign Members are to be found in the current edition of the Year Book of the Royal Society. A copy of 'Notes for the guidance of Fellows communicating papers' is available from the Executive Secretary. In the event of any difficulty, an author is invited to seek the assistance of the Executive Secretary.

No page charge is levied, and the first 50 offprints of a paper are supplied to the author gratis.

The Editors particularly welcome short communications to Proceedings; as far as possible they will be given expeditious treatment both in consideration and in printing, and this will be facilitated if a paper is submitted with a firm recommendation by a Fellow.

Associate Editors: series A, Mathematical and Physical Sciences

Professor W. J. Albery  Sir David Cox  Professor M. Pepper
Sir Michael Atiyah  Professor P. Gray  Professor M. J. Rees
Professor C. R. Calladine  Professor C. Hilsum  Professor F. T. Smith
Professor P. Chadwick  Professor R. H. Ottewill  Professor J. T. Stuart
  Professor D. W. Pashley

(For Standing Orders see current Year Book.)

Copyright

© 1989 The Royal Society and the authors of individual papers.

It is the policy of the Royal Society not to charge any royalty for the production of a single copy of any one article made for private study or research. Requests for the copying or reprinting of any article for any other purpose should be sent to the Royal Society.
FRACTALS IN THE NATURAL SCIENCES

A DISCUSSION ORGANIZED AND EDITED BY M. FLEISCHMANN, F.R.S.,
D. J. TILDESELEY AND R. C. BALL
(Discussion held 19 and 20 October 1988 – Typescripts received 28 November 1988)

[Three plates]

CONTENTS

B. B. MANDELBROT
Fractal geometry: what is it, and what does it do? 3
Discussion: A. Blumen 16

R. B. STINCHCOMBE
Fractals, phase transitions and criticality 17
Discussion: E. Courtens 33

D. W. SCHAEPER, B. C. BUNKER AND J. P. WILCOXON
Fractals and phase separation 35
Discussion: J. S. Rowlinson, R. C. Ball, D. J. Tildesley 51

E. COURTENS AND R. VACHER
Experiments on the structure and vibrations of fractal solids 55

M. Y. LIN, H. M. LINDSAY, D. A. WEITZ, R. C. BALL, R. KLEIN
AND P. MEAKIN
Universality of fractal aggregates as probed by light scattering 71

J. G. RARIETY, R. N. SEABROOK AND R. J. G. CARR
Light-scattering studies of aggregation 89
Discussion: D. A. Weitz 101

D. S. BROOMEHEAD AND R. JONES
Time-series analysis 103

R. C. BALL, M. J. BLUNT AND O. RATH SPIVACK
Diffusion-controlled growth 123
Discussion: J. S. Rowlinson 132

P. MEAKIN AND SUSAN TOLMAN
Diffusion-limited aggregation 133
Discussion: A. Blumen 147

D. B. HIBBERT AND J. R. MELROSE
Electrodeposition in support: concentration gradients, an ohmic model and the genesis of branching fractals 149
Discussion: R. C. Ball 158
Contents

R. LENORMAND
Flow through porous media: limits of fractal patterns 159

P. PFEIFER, M. OBER AND M. W. COLE
Fractal BET and FHH theories of adsorption: a comparative study 169

A. BLUMEN AND G. H. KÖHLER
Reactions in and on fractal media 189

Discussion: D. W. SCHAEFER 199