

Table of Contents

Preface

Acknowledgements

Table of Contents

Bulk Diamond

A.K. Dua 1

Diamond Thin Films

A.K. Dua 6

Preparation

A.K. Dua 8

Characterisation of Diamond Coating

A.K. Dua 22

General Experimental Trends in Chemical Vapour Deposition of Diamond 23

Mechanism of Diamond CVD

A.K. Dua 26

Nucleation and Growth of Diamond

A.K. Dua 31

Diamond Epitaxy

A.K. Dua 37

Substrate Requirements

A.K. Dua 39

Substrate-Coating Interface

A.K. Dua 41

Coating-Metallisation Interface

A.K. Dua 44

Processing of Diamond Films

A.K. Dua 47

Defects and Impurities in Diamond Films

A.K. Dua 59

Nano-Crystalline Diamond Thin Films

A.K. Dua 64

In Situ Diagnostics

A.K. Dua 66

Reactor-Scale Modelling/Simulation

A.K. Dua 69

Expected Applications

A.K. Dua 72

Recent Developments

A.K. Dua 83

Future Perceptions

A.K. Dua 89

20. References