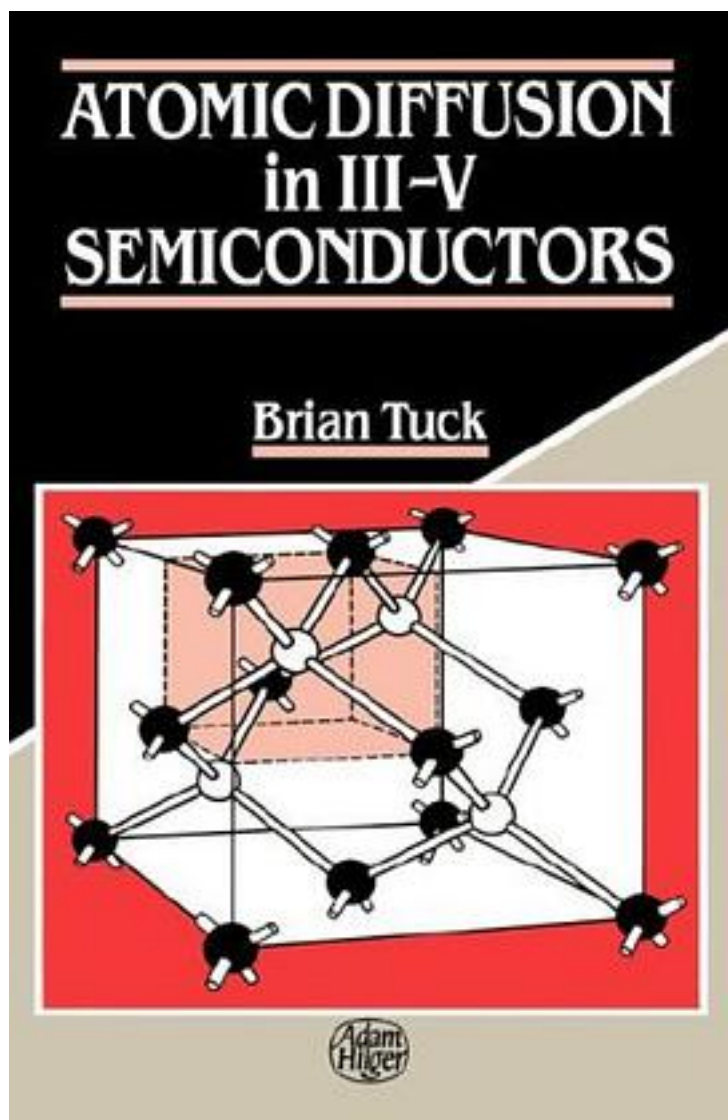


Atomic Diffusion in III-V Semiconductors



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著者:Tuck, B.

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III-V semiconductors, of which gallium arsenide is the best known, have been important for some years and appear set to become much more so in the future. They have principally contributed to two technologies: microwave devices and optoelectronics. Recent advances in the production of thin layers have made possible a whole new range of devices based on multi-quantum wells. The heat treatments used in the manufacture of semiconductor devices means that some diffusion must take place. A good understanding of diffusion processes is therefore essential to maintain control over the technology. Atomic Diffusion in III-V Semiconductors presents a lucid account of the experimental work that has been carried out on diffusion in III-Vs and explores the advanced models that explain the results. A review of the III-V group of semiconductors outlines the special properties that make them so attractive for some types of devices. Discussion of the basic elements of diffusion in semiconductors provides the theory necessary to understand the subject in depth, and the book gives hints on how to assess the published data. Chapters on diffusion of shallow donors, shallow acceptors, transition elements, and very fast-diffusing elements provide a critical review of published works. The book also presents the neglected subject of self-diffusion, including a section on superlattices. Atomic Diffusion in III-V Semiconductors will be of interest to research workers in semiconductor science and technology, and to postgraduate students in physics, electronics, and materials science.

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