

CONTENTS

1. Introduction	6
2. Control of Non-Radiative Recombination in Power Devices	7
2.1. Recombination Centers Produced in Silicon by Ion and Electron Irradiation	8
2.2. Radiation Defects and Formation of Shallow Donors	13
2.3. Optimization of Power Device Parameters by Advanced Lifetime Killing	14
2.4. Lifetime Killing by Diffusion of Noble Metals Controlled by Radiation Defects	15
3. Radiative Recombination in Semiconductor Nanostructures	17
3.1. Electronic States in Semiconductor Quantum Wells and Dots	19
3.2. Recombination in Self-Assembled InAs Quantum Dots in GaAs	21
3.3. Influence of Strain Reducing Layer	23
4. Conclusions	26
References	27
Curriculum Vitae	29