

**「Silicon Light-Emitting Diodes and Lasers」
(Springer) 2016.8.9**

「Silicon Light-Emitting Diodes and Lasers」

—Photon Breeding Devices using Dressed Photons—

Motoichi Ohtsu

Springer

2016.8.9

ISBN 978/3/319/42012/7

Nano-Optics and Nanophotonics

Nano-Optics and Nanophotonics

Motoichi Ohtsu

Silicon Light-Emitting Diodes and Lasers

Photon Breeding Devices using Dressed Photons

Motoichi Ohtsu

Silicon Light-Emitting Diodes and Lasers

Photon Breeding Devices using Dressed
Photons

This book focuses on a novel phenomenon named photon breeding. It is applied to realizing light-emitting diodes and lasers made of indirect-transition-type silicon bulk crystals in which the light-emission principle is based on dressed photons. After presenting physical pictures of dressed photons and dressed-photon phonons, the principle of light emission by using dressed-photon phonons is reviewed. A novel phenomenon named photon breeding is also reviewed. Next, the fabrication and operation of light-emitting diodes and lasers are described. The role of coherent phonons in these devices is discussed. Finally, light-emitting diodes using other relevant crystals are described and other relevant devices are also reviewed.

Physics

ISBN 978-3-319-42012-7



springer.com

 Springer