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ZnO: From Optoelectronic Materials to Devices

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报告人简介: 单崇新: 中科院“百人计划”研究员, 国家杰出青年基金获得者。1999年本科毕业于武汉大学, 2004年博士毕业于中国科学院长春光学精密机械与物理研究所。2004年到2008年先后在香港中文大学和英国诺丁汉大学进行博士后研究。2008年入选中科院“百人计划”, 并于2013年结题时被评为“优秀”。近年来一直在从事氧化锌基光电材料与器件研究, 获吉林省自然科学一等奖、吉林省科技进步一等奖、吉林省自然科学学术成果二等奖、长白青年科技奖特优奖、徐叙瑢发光学优秀青年论文”一等奖等科技奖励和荣誉, 入选吉林省拔尖创新人才和吉林省中青年科技创新领军人才, 获吉林省“优秀海外归国人才”等荣誉称号。

摘要: Zinc oxide has attracted much attention in recent year for its wide bandgap and large exciton binding energy, it is expected that efficient excitonic emission and low-threshold lasing may be realized from this kind of materials due to its unique properties. Experimentally, various ZnO luminescences and lasings under optical pumping excitation conditions have been observed. However, to fabricate efficient optoelectronic devices, it is usually necessary to construct p - n junctions. However, ZnO is intrinsically an n -type semiconductor, and p -type doping is a necessity to construct p - n junctions. Such issue has been one of the most challenging issues for ZnO. In this talk, we will show our exploration, thinking, and solutions in this issue.

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