Advanced spectroscopy investigations in ZnO-based heterostructures

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In this lecture I will review some of the most interesting results obtained by cw and time-resolved spectroscopy using high quality bulk zinc oxide, ZnO-related hetero-structures, ZnO-related wire-like and two-dimensional micro-cavities. Results presented here are chosen among the own result of my group and in the fresh literature of the field.

During this lecture I will successively emphasise in particular:

- Light propagation in bulk ZnO the near band gap energy region where polariton effects mediate the group velocity [1,2]
- Observation of Quantum Confined Stark Effect in ZnO-ZnMgO quantum wells grown along the polar orientation [3,4]
- Experimental observation of selection rules at the scale of the optical properties of non polar ZnO-ZnMgO (M-Plane grown) quantum wells [5]
- Experimental observation of optical properties of non polar ZnO-ZnMgO (M-Plane grown) quantum wells free non-radiative recombination processes [6]
- Polariton lasing in ZnO nanorods [7]
- Polariton lasing in ZnO-based 2D microcavities [8,9]
- In-plane polariton migration in 2D microcavities [10]

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