

Abstract Submitted
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Excitonic Physics in Oxide Multilayers¹ ANDREW MILLIS,
Columbia University — Transition metal oxide heterostructures involving Mott insulating components offer an attractive possibility for creating novel excitonic states. The bandgaps of the Mott materials can be small and relatively tunable, making the addition of both electrons and holes feasible. The polar-discontinuity physics offers a promising route to inducing high density interface gasses while the short length scales mean that spatial separation between electron and hole gasses may be small. The strong many body effects occurring in oxides raises the possibility of new kinds of states. This talk will summarize our understanding of the issue, outlining issues involved, listing possible candidate materials and presenting phase diagrams of model systems.

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