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One-way-featured phase transition of confined oxygen (O_2) in porous materials with different geometry restrictions HU CAO, SHAH VALLOPPILLY, Indiana University Cyclotron Facility, TIMOTHY PRISK, PAUL SOKOL, Indiana University, INDIANA UNIVERSITY CYCLOTRON FACILITY TEAM — The confinement effect of oxygen adsorbed in porous materials (MCM-48, MCM-41 and vycor) has been investigated by means of susceptibility measurements. A one-way-featured phase transition has been found at the phase transition of $\alpha \rightarrow \beta$ on heating in MCM-41 and vycor. Our studies has clearly revealed that the confinement effect of oxygen confined in porous materials is dependent on the geometry restrictions: MCM-48 with ordered three-dimensionally (3-D) interconnected pore systems shows a complete bulk feature of oxygen, whereas MCM-41 with 1-D long nonintersecting arrays and vycor with randomly oriented 3-D connected pores show typical confinement effects of oxygen.

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