

High pressure studies of dense oxygen and nitrogen binary mixtures

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Abstract

Through a series of high-pressure Raman scattering and x-ray diffraction experiments on N₂-O₂ binary mixtures with oxygen concentrations varying from 10% to 77%, we systematically explore the molecular interactions of the mixtures. Our study widely extended the room-temperature phase diagram for the N₂-O₂ system from 12 GPa to ~60 GPa for all concentrations and up to ~160 GPa for 28% of oxygen.