

Abstract Submitted
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Stability of Solid Oxygen at High Pressure¹ SABRI ELATRESH,
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B3H 3J5, Canada — Despite extensive theoretical and experimental studies, the
stability of solid oxygen at high pressure remains an open question. Recent experi-
mental results proposed a new phase that is stable at finite temperature [1]; however,
the evidence is not conclusive. In this work, we reexamine the stability of the phase
diagram of solid oxygen up to 100 GPa. In particular, we focus on the mechanical
and thermodynamic stability of the recently proposed finite temperature phase. The
influence of exchange interactions and the role of ion dynamics, including quantum
effects, will be discussed.

[1] Alexander F. Goncharov, et al. **135**, 084512 (2011).

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