IDENTIFICATION OF PHOSPHORUS MONOXIDE ($X^2\Pi_r$) IN THE ORION MOLECULAR CLOUD: FURTHER EVIDENCE FOR THE UBIQUITOUS P-O BOND

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The PO molecule has been identified towards the Orion-KL region based on a 3mm survey carried out with the ARO 12m. The J = 2.5-1.5 transition was observed, consisting of two lambda-doublets, both of which were detected. The PN ($X^1\Sigma$) J = 2-1 transition was also detected. Both PO and PN exhibited line profiles and LSR velocities characteristic of the Orion Plateau region, indicating that shocks are primarily responsible for their formation. A calculated PO/PN value of approximately 3 is similar to other molecular clouds where both species have been observed, suggesting that PO may be a relatively common molecule in star-forming regions.