

Seven Millimeter Imaging of the R Corona Australis IRS 7 Region with the VLA

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The nearby star formation region, R CrA IRS 7, was observed in the 6.9 mm continuum with a high angular resolution (~ 1 arcsec) using the VLA. Five sources were detected. Among them, three compact objects are located within 4 arcsec (700 AU) of IRS 7A. The object in the middle of the complex was discovered for the first time. Since it has no known counterpart at centimeter wavelengths, its millimeter emission may mostly come from dust, suggesting that it may be a deeply embedded class-0 object. In contrast, IRS 7A is probably not as deeply embedded as the others since it was detected in near-IR and X-ray bands. It is not clear what causes the difference between IRS 7A and the others. If they belong to a coeval triple stellar system, either IRS 7A may have evolved faster and disrupted the parent cloud faster than the others, or IRS 7A may be in the process of being ejected. Alternatively, IRS 7A could be a relatively older object in the process of being captured by the other two objects that constitute a younger binary system. Yet another possibility is that IRS 7A may not be a young stellar object but may be a part of the outflow driven by the central object of the complex.