

## **Probing the dust formation zone in IRC+10216 with the SMA**

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Submillimeter imaging of high-excitation molecular rotational lines provide a powerful probe of the dust formation and acceleration region ( $R \lesssim 5 \times 10^{16}$  cm) in the extreme carbon-rich star IRC+10216. We present SMA observations of several rotational lines of SiCC from our 345 and 400 GHz spectral-line surveys, showing a progression from rectangular to narrow triangular line-profiles, and spatially extended to point-like unresolved emission, as a function of increasing energy  $E_u(K)$ . Maps of SiC and SiN emission show asymmetrical extended shell-like structures. Metal halides AlF and AlCl emission shows two spatial components, a spatially unresolved, and a very compact shell just barely resolved with our 3" beam. Salts NaCl and KCl also appear very close to the star, within a few arcseconds, but already show the terminal expansion velocity of  $14 \text{ km s}^{-1}$ . These results are compared with published chemical model calculations of radial abundances of various molecules that are believed to be relevant for dust formation.