

# ACTIVE DUST FORMATION BY POPULATION I WOLF-RAYET WC STARS

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## ABSTRACT.

We review studies of heated dust formation around Wolf-Rayet stars, observed in the infrared with groundbased *JHKLMN* photometry, Keck-2 IR image masking interferometry, and *HST*-NICMOS IR imaging. Periodic fresh dust formation with periods of the order of ten 10 years has been discovered for three WC+O binaries, episodic dust formation has been found for another four WC+O stars, while persistent dust formation is known for 18 WC8-9 stars. Of the last category two stars have been imaged by Keck-2, showing rotating pinwheels in the sky with periods of the order of one year.

Ramifications of the existence of heated amorphous carbon dust formation in the hot ionized stellar winds of WR stars will be discussed. Dust formation is the least understood of all phenomena associated with colliding stellar winds in WR+OB binaries, including also non-thermal radio emission and variable X-ray and  $\gamma$ -ray emission. While those phenomena are associated with the top of the wind-wind collision cones, dust formation is happening in the wake of the collision cones, at distances of a few hundred stellar radii, and thus is associated with the circumstellar and interstellar matter around these hot evolved massive stars. After formation, the dust is being carried away by the WC stellar winds and cools gradually to interstellar temperatures. The cooling dust very likely effects also the wavelength regions where *FIRST* operates.