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Magnetic reconnection in pulsar magnetospheres, winds and nebulae BENOIT CERUTTI, CNRS Univ. Grenoble Alpes — Pulsars blow ultra-magnetized relativistic winds loaded with electron-positron pairs created and launched in the magnetospheric regions. A generic feature of pulsar winds is a large-scale oscillating current sheet, or striped wind, forming where the magnetic field polarity reverses, thus providing an ideal environment to study magnetic reconnection in the relativistic, collisionless and radiative regime. Reconnection in the innermost parts of the wind is thought to power the observed high-energy pulsed emission from pulsars. Recent global particle-in-cell simulations suggest that reconnection proceeds in the plasmoid-dominated regime and consumes the field until the complete dissipation of the striped wind. At the wind termination shock, the remaining magnetic energy may be dissipated via turbulent reconnection, which may power the bright synchrotron nebula surrounding pulsars.

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