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Embedded current sheet in the Earth's magnetotail

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Thin current sheets are one of key plasma objects responsible for accumulation and explosive release of free energy. With modern multispacecraft observations it is possible to directly detect thin current sheets in the Earth's magnetotail, in particular during growth phase and after substorm onsets. Thin sheets are usually embedded in a thicker plasma sheet. We discuss several recently introduced quantitative parameters of a thin current sheet: embedded sheet boundary, density and temperature of current-carrying particles, as well as tools to estimate down-tail gradient.