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MoTiC (Monolithic Timing Chip)

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MoTiC (Monolithic Timing Chip) is a prototype DMAPS Chip that builds on sensor technology developed in the ARCADIA project.
The 50 by 50μm^2 pixels contain a small charge collecting electrode with a very low capacitance surrounded by radiation-hard in-pixel electronics.
The chip contains a matrix of 5120 pixels on an area of 3.2 by 4 mm^2.
Each pixel features a trimmable and maskable comparator with a sample and hold circuit for the analog pulse height.
Groups of 4 pixels share a TDC situated also in the readout matrix.
This work presents the chip design and preliminary results measured in a first test beam campaign with 4-5 GeV/c electrons conducted at DESY.

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