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X-ray optics for exotic atoms experiments

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SIDDHARTA-2 aims to perform the first measurement of the kaonic deuterium transitions, which, combined with the result on kaonic hydrogen, will deliver the isospin-dependent kaon-nucleon scattering lengths, fundamental to low-energy QCD. A related experiment, using the new Transition Edge detectors has been successively proposed, for accurate determination of the controversial k- mass and for measuring other exotic atoms requiring eV precision.
Investigating the use of TES microcalorimeters for X-ray transitions in strongly interacting systems, the idea of including polycapillary optics came naturally, considering the gain in both signal and shielding efficiency. Several under-study topologies will be presented.

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