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State of the art X-ray imaging cameras

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The indirect detection scheme is based on a converter screen, front-optics and an imaging camera. This low-cost and low-risk solution based on commercial components is used on all synchrotron radiation sources for beam visualization and beam movement monitoring, and intensively for imaging applications. The indirect detection systems require a compromise between these conflicting parameters: large field of view and spatial resolution; high stopping power and spatial resolution. Nowadays, off-the-shelf systems or components are widely spread within SR sources but have some limitations: DQE, resolution, speed, etc.

New indirect detection systems require higher DQE, faster cameras, higher image definition, better contrast and radiation resistance design. The detector developments are then focused on efficient scintillators, 16Mpixels optics, radiation-hard optics for pink beam and white beam, and the integration of fast-imaging cameras. An overview of the technology and the various components will be discussed. The properties performances and potential applications of the ESRF components and off-the-shelf systems will be described.

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