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The Evolution of Protein Crystallographic Detectors: Past, Present and Future. E. M. Westbrook, Molecular Biology Consortium Inc., Chicago, IL 60612 USA.

Over the past twenty years, X-ray detection technologies for protein crystallographic data collection have been dramatically improved, with each detector advance being based on advances in technology: in electronics and electronic devices, in materials, and in software. In particular, implementation of multiwire proportional counting systems revolutionized structural biology research. Today's "standard," the fiberoptically-coupled CCD array, is very good indeed, but it is far from perfect. Emerging new technologies are now out there that we can employ to improve our detectors again, particularly new CCD, CMOS, and silicon pixel-array detector (PAD) technologies. Incorporated into carefully engineered detector systems, these new technologies promise fantastic performance enhancements, in efficiency, dynamic range, size, pixel density, and spatial resolution.

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