

Abstract Submitted  
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**Angiography employing channeling radiation or coherent bremsstrahlung** HERBERT UBERALL, Catholic University, Washington. DC — Angiography (imaging of coronary arteries) using synchrotron radiation has been carried out at the Stanford and later the Brookhaven Synchrotron. Digital subtraction angiography (DSA) with a contrast agent based on iodine is used above and below the K-edge (33.16 keV) employing a monochromatized beam of intensity reduced by a thousand. Channeling radiation or coherent bremsstrahlung furnish quasi-monochromatic beams, allowing efficient DSA at a photon flux of ten to the twelfth photons/sec. This requires an about 100 MeV electron linac for channeling radiation, or (better) an about 20 MeV linac for coherent bremsstrahlung. In the latter case, a large, broad incoherent bremsstrahlung peak accompanies the monochromatic spike (leading to inadmissible overexposure of the patient), but with the use of Kumakhov's capillary optics (see S. B. Dabagov, Physics Uspekhi 46, 2003, 1053-1075) the low-energy spiked radiation can be deflected towards the patient, while the incoherent peak continues forward, avoiding the patient who is placed several meters from the source.

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