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Invited Talk

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7th EUROPEAN VACUUM CONFERENCE, **EVC-7**,
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A reviewed version of the full paper may be published in VACUUM.

Energetic Deposition using Filtered Cathodic Arc Plasmas

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ENERGETIC DEPOSITION USING FILTERED CATHODIC ARC PLASMAS

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Energetic deposition can be defined as a film deposition process in which a significant fraction of particles arrives at the substrate surface with a kinetic energy greater than the bulk displacement energy of the substrate. Examples of energetic deposition processes are ion beam assisted deposition (IBAD), plasma immersion ion deposition, pulsed laser deposition, and cathodic arc deposition. This work focuses on the production, properties, and use of filtered cathodic arc plasmas. Even without bias, dense metal and metal compound films can be obtained. Biasing the substrate, e.g. using the pulsed biasing technique of plasma immersion ion deposition, extends the possibilities of tuning film properties such as adhesion, stress, surface roughness, elastic modulus, hardness, and density. The formation of ultrathin ta-C (diamondlike carbon) films and metal films will be discussed.