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Feature Profile Simulation Taking into Account the Finite Penetration Depth PAUL MOROZ, Tokyo Electron US Holdings — Feature profile simulations so far were mainly done under an assumption that incoming gas species of all energies physically or chemically interact only with the surface monolayer of the material. In a more advanced studies, a constant-width mixing layer was considered to take into account energetic particles which could go deep inside the material. However, the penetration depth is not a constant and should be different for different particles, because it strongly depends on the particle energy, on the type of the particle, and on the type of the material. In our work, the penetration depth is derived from analytic theory, molecular dynamics simulations, and from stopping and range software. The resulting fitting curves for the finite penetration depth are then used in the FPS feature profile simulator. The proposed simulation is discussed and the results of simulation are presented.

Paul Moroz
Tokyo Electron US Holdings

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