Concluding remarks

The sweeping progress of ion source and accelerator technology is a challenge for engineers and scientists to promote as well their practical uses.

While low-energy ion implantation can be considered as a standard tool in semiconductor and surface technology, at considerably higher ion energies the astounding phenomenon of discrete and directed ion tracks appears distinctly. This opens the startling possibility to structure and modify materials with individual atomic particles. The unrivalled depth and sharpness of this "microknife" foreshadows new stimuli for an almost unlimited variety of fields.

The above work is devoted to the preliminary exploration of the technique, outlining tentatively its relation to materials and microstructure technology.

In realizing this task, "synergetically" several favorable circumstances conspired. The availability of heavy ions of sufficient energy (boosted by the needs of basic research), the possibility to amplify the engraved damage zone chemically by many orders of magnitude (a key to the practical applicability), and finally the responsive tolerance of the embedding environment (a necessary condition for a pleasant work).

Very much remains to be done to penetrate deeper, to understand better, to describe the transcription of energy into a lasting radiation effect and its development, and, finally, to derive useful applications. Some consolation about the incompleteness of this work can be found in the history of a closely related branch of science: Hundred and fifty years after the invention of photography, this field is still far from coherent and conclusive, but nevertheless sparkling with life and fruitfulness.

R. Spohr, *Ion Tracks and Microtechnology*
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