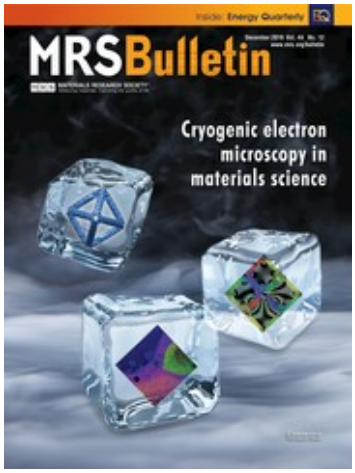

Damage in electron cryomicroscopy: Lessons from biology for materials science

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Summary

The recent success of electron cryomicroscopy in biology has drawn the attention of the materials science community, which is starting to employ similar techniques for imaging a wide variety of nonbiological specimens. This article reviews the theory and practical implications of radiation damage in electron microscopy, and then considers how electron cryomicroscopy techniques may be applied to other radiation-sensitive specimens of interest to materials scientists. We also discuss aspects of radiation damage that warrant further study as instrumentation technology advances and consider new methods that might be useful in the future.