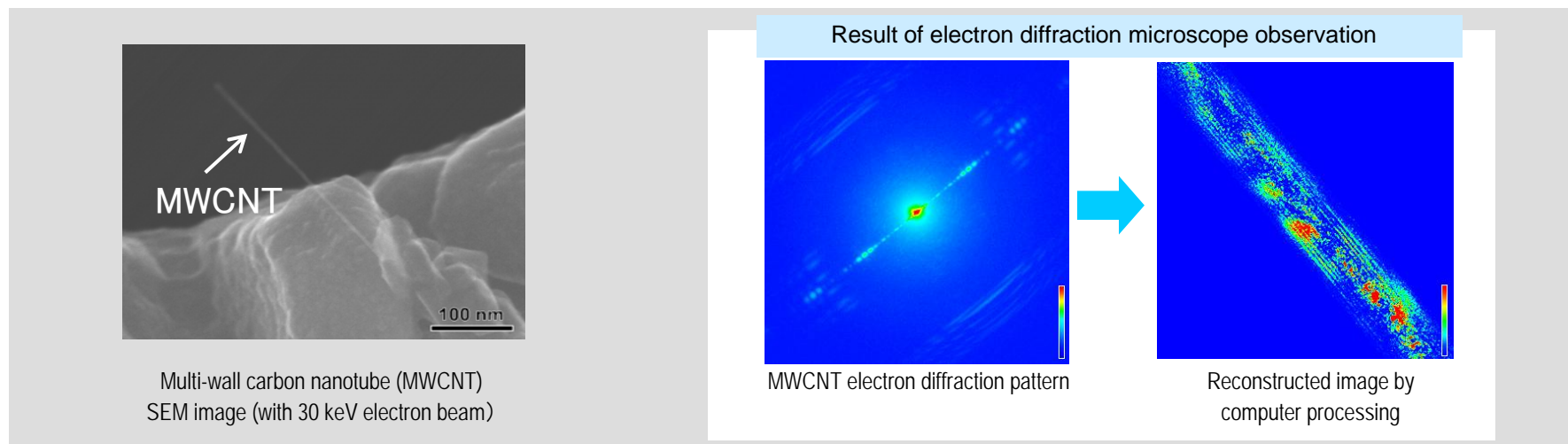


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## Prototype SEM-based electron diffraction microscope developed by Hokkaido University and Hitachi - Enabling extended observation of light-element materials such as organic samples with resolution equivalent to TEM -



Hokkaido University and Hitachi, Ltd. have produced a prototype “low-damage and aberration-free electron diffraction microscope” which causes minimal damage to the observation sample and is free from the influence of lens aberration. This microscope allows extended and high-resolution observation. This is the first time in the world that a scanning electron microscope (SEM) with low energy electron beam has been successfully combined together with diffraction microscopy which uses computer processing of diffraction patterns to reconstruct images, instead of using imaging lenses. As a result, it is now possible to conduct repeated observations of light element materials such as organic materials which hitherto were difficult to observe over long periods as they were easily damaged by high energy electron beams. Further, as imaging lenses are not used, there is little distortion or misalignment of focus enabling high resolution observations to be conducted. This development was achieved by the combination of Hokkaido University’s expertise in digital computer processing and Hitachi’s electron microscope technology, and is part of joint research conducted under the academia-industry collaboration between Hokkaido University and Hitachi, Ltd. since 2004.