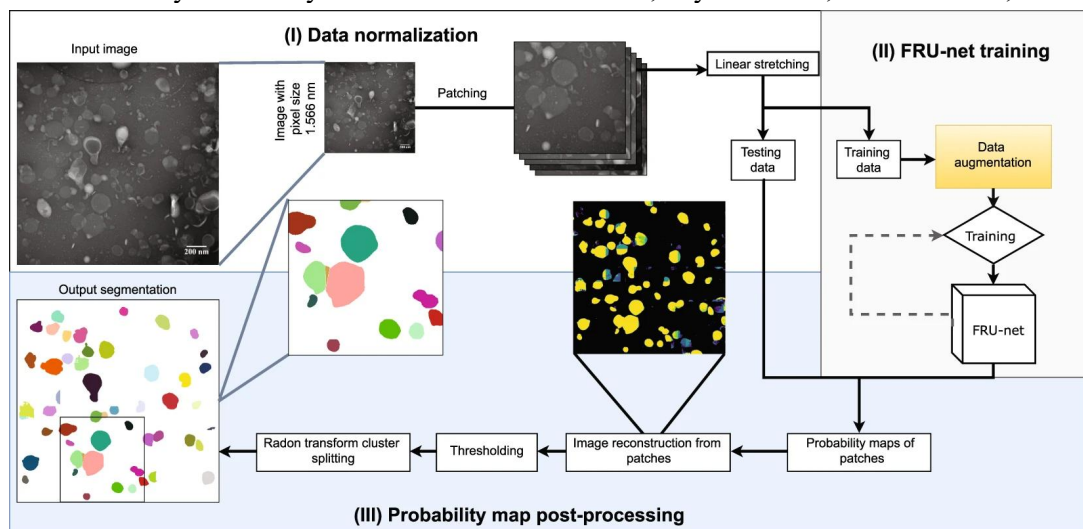


TEM Data Analysis

The transmission electron microscope (TEM) will interact with the atoms inside the sample after the incident electrons pass through the sample, thereby changing its energy and direction of movement. Different structures have different interactions. In this way, the internal structure of the sample can be understood based on the information obtained from the transmission electron image. Due to the complexity of the sample structure and interaction, the obtained image is also very complicated. It is not as intuitive and understandable as the surface topography.

TEM data analysis refers to a data processing method to obtain sample structure information through a series of measurements, analysis, and calibration of the original spectrum. Through the analysis of TEM data, we can get the information of the sample size, particle size statistics, crystal grain size, crystal structure, crystal phase composition, atomic arrangement order and so on. Currently commonly used software includes DM, CrystalMaker, NanoMeasure, etc.



TEM image analysis softwares

- Digital Micrograph (DM): DM has multiple functions such as image acquisition, image processing and analysis, data management and report printing.
- ImageJ: ImageJ can open any number of images for processing. In addition to basic image operations, such as zooming, rotating, warping, and smoothing, ImageJ can also perform image area and pixel statistics, spacing, and angle calculations, create histograms and profile maps, and perform Fourier transforms.

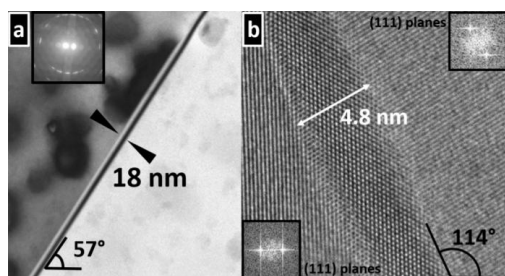
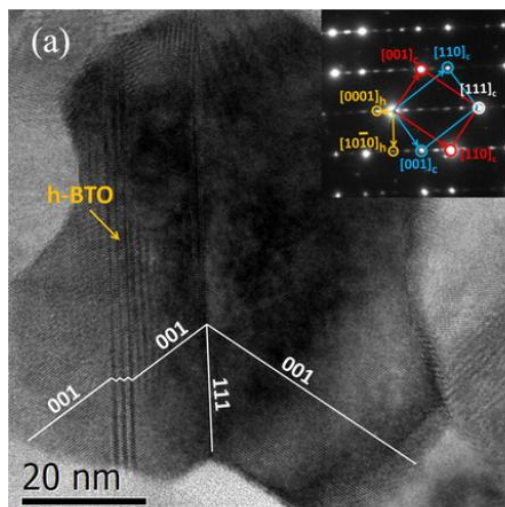
- Image-Pro Plus (IPP): IPP is a top-level image analysis software package, with powerful 2D and 3D image acquisition, processing, enhancement and analysis software, with exceptionally rich measurement and customization functions.
- Simple-PCI: a software dedicated to statistics of particle size and particle size distribution, suitable for professional image processing systems in medicine, biology, scientific research, industry and other fields.
- Nanomeasure: super simple and practical particle size distribution statistics software, very suitable for nano materials.

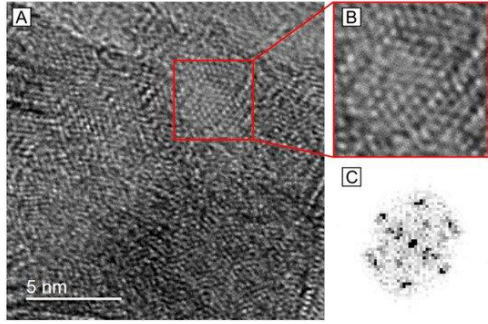
TEM data analysis process

Take Digital Micrograph (DM) processing analysis data as an example:

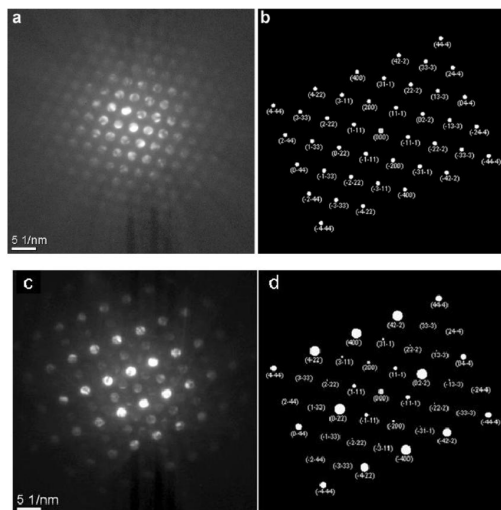
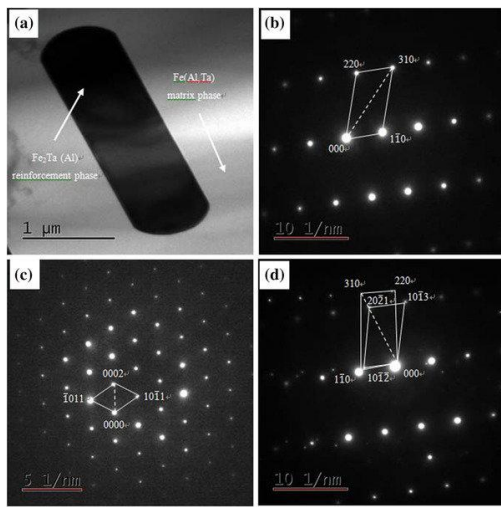
- Calibration of diffraction pattern in TEM
- Image measurement
- Particle size analysis

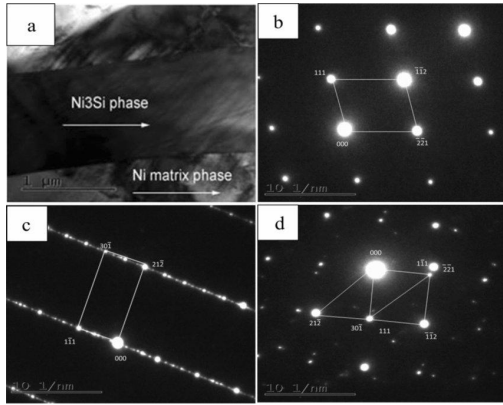
TEM crystal plane calibration case





TEM electron diffraction pattern calibration case

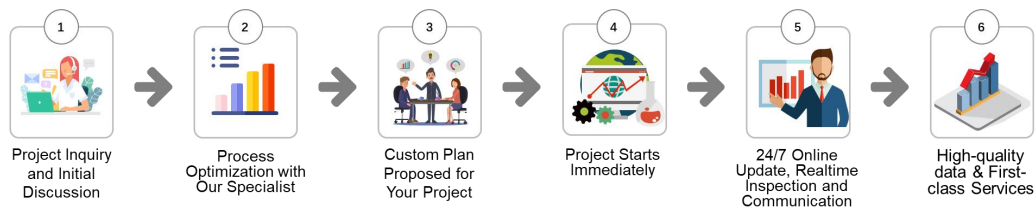




T,C&A Lab

The processing of TEM data has become the task of experts, who can understand the data and its format, as well as software, programs and databases. With the support of the most advanced TEM platform and expert team, T,C&A Lab is committed to helping customers with TEM experiment design, data collection and interpretation. Welcome to contact our experts for consultation.

Service Process



Note: this service is for Research Use Only and Not intended for clinical use.

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