Advanced integrated solutions based on atomic-force microscopy

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Atomic force microscopy (AFM) with modern techniques and combination with advanced optical methods continue to be one of the most powerful tools for advanced materials analysis at nano-scale. The NT-MDT Group (NT-MDT BV – The Netherlands; NT-MDT LLC and MTEON LLC – Russian Federation) produce Atomic-Force Microscopes and AFM based multi-method tools which are used to obtain comprehensive information about sample surface characteristics including topography, rigidity, adhesion forces mapping, spreading resistance, surface potential, magnetic domain structure etc.

| **New generation of digital AFM controller** | Implementation of all existing and perspective AFM techniques  
Improved fast scanning algorithms  
Raster Nanomechanics Analysis (RNMA mode)  
Direct access to more than 12 AFM signals (with no additional hardware) |
| **Full automation of AFM head alignment** | Automation measurement processes for routine research  
Possibility to adjust measuring head via software (including operation in vacuum) |
| **New generation of AFM optical head** | Outstanding level of AFM and optical methods combination in all new design with possibility of high efficiency laser illumination in “side”, “bottom” and “top” scheme. |
| **Powerful Raman spectrometer** | Spectrometer with automated switch between up to 5 lasers and cover whole optical range from UV to near IR  
Fast laser scanning using galvano-mirrors  
Coherent spectroscopy of combination anti-Stokes light scattering (CARS) |
| **High resolution magneto-optical microscopy** | Novel design of Si aperture probe helps to achieve efficient illumination, focusing. Light collection with possibility of independent detecting XY polarization direction |
| **LTEM** | Combination of AFM and laser terahertz emission microscopy |

The team has more than 20 years’ experience in the development and production of atomic force microscopes. The NT-MDT group provide maintenance, service support and upgrade of all AFM based devices which were produced under the NT-MDT brand name - installed in Russia and world-wide.