Proiecte de cercetare in colaborare cu VDL ETG Olanda

Compania olandeza VDL Enabling Technologies Group si-a manifestat deschiderea pentru dezvoltarea in comun a unor proiecte care sa implice atat studenti ai universitatii noastre cat si cadre didactice, materializate fie prin teme de proiect de diploma, disertatie - master si chiar doctorat. In acest sens, am primit primele propuneri generale (directii de interes) din partea firmei, propuneri pe care vi le prezentam mai jos:

A. Particle contamination in closed environments

- -Analysis of the particle generation phenomena in contacts between robotic arms and manipulated products
- -Accurate manipulation of fragile products like wafer substrates and reticles in the semiconductors manufacturing industry
- -Establishing of system design rules (material choices, cleaning, etc.) to avoid particle contamination
- -Measurement and qualification of particle-free environments

B. Temperature non-uniformity in positioning systems for semiconductor wafers

- -Mechanical design for achieving uniform temperature distributions (shapes, spatial distributions, roughness requirements)
- -Adequate fluid flow

C. Additive manufacturing for subsystems of wafer handling and positioning devices

- -Suitability of specific modules and components for additive manufacturing
- -Manufacturing processes (materials, shapes, etc.)

D. System qualification of complex systems (mechanics, mechatronics, pneumatics, electromagnetics)

- -Building for accurate qualification of complex systems with sizes of about 1 meter
- -Qualification in the micrometer range of large systems (procedures, technologies, etc.)

E. Handling of magnetic materials

- -Manufacturing while preserving the magnetic properties
- -Handling of modules and components while preserving the magnetic properties
- -Control and qualification of magnetic properties after manufacturing and handling

F. Design for cost reduction of high-tech components and modules

- -Design based on user and functional requirements
- -Redesign of existent products while maintaining/improving specifications
- -Cost-down manufacturing
- -Design for cost-efficient integration of subsystems (mechatronic modules, pneumatic devices, drives & control, etc).

G. Improvement of the motion smoothness in large mechatronic structures

- -Bearings based on porous materials