NICA accelerator complex is presently under construction at JINR, Dubna. It will consist of heavy ion and polarized particle sources, RFQ injector, heavy- and light-ion linear accelerators, superconducting booster synchrotron, existing Nuclotron synchrotron and two superconducting collider rings.

TANGO based control system is under development. Key points:
- Centralized administration and monitoring
- Reliable operation, quick recovery after failures.
- Safe operation, access restrictions.
- Ease of support, modification and scaling
- Rapid development and easy deployment

Three layers layout:
Front-end layer – control equipment and acquire data from sensors
Service layer - high level TANGO devices and CS services.
Client layer - data visualization, operator interface.

Front-end layer
- PXI modular platform for common acquisition tasks. 1500+ instruments available FPGA based solutions for custom DSP, synchronization, signal generation:
- FlexRIO – PXI and PXIe modules with Xilinx FPGA, onboard memory and standard or custom input modules.
- CompactRIO – FPGA and processor (running RT OS) based platform with standard or custom I/O modules.
 Developed programming TANGO support for NI equipment:
- TANGO devices for many acquisition tasks: digital and analog I/O, timers, counters, digitizers, multimeters, RTD modules.
- TANGO devices providing interface for NI FPGA solutions. Run on PXI or CompactRIO controllers.

Client layer - TANGO Web applications
TANGO devices to simplify web client applications development:
- RestDS - REST protocol to access TANGO devices attributes and commands via HTTP: http://host:port/tango/tango_domain/tango_class/tango_member/attribute_name http://host:port/tango/tango_domain/tango_class/tango_member/command_name
- WebSocketDS – access to TANGO device attributes via WebSocket protocol.
- TangoWebAuth performs authentication of users to restrict access of web applications to TANGO devices. The access rights are configured in database.
Web applications are developed using JavaScript with help of ExtJs framework.

Service layer - High Availability cluster
Service layer virtualized, run on cluster. Supermicro nodes running Proxmox VE + Ceph:
- Data is replicated with factor 3
- Thin provisioning
- Snapshots support
- No single point of failure, self healing
- Scalability - improves characteristics on scale
- KVM stored on Ceph RBD + OpenVZ containers on local storage

Control system administration
- Astror/ Starter TANGO services for remote management of TANGO devices.
- Additional server-side authorization for more flexible access control.
- Operator-expert rights separation.

Control system monitoring
- Custom monitoring system to check computers and TANGO devices.
- Zabbix monitoring system to check Ceph, Proxmox cluster, MySQL databases.

Control system management
NicaControls hardware and software database stores and manages relations of NICA controls components, including:
- Facilities - accelerators, transfer lines.
- Subsystems - RF, vacuum, beam diagnostics etc.
- Devices - electronics, equipment.
- Computers, networking devices.
- TANGO software - TANGO devices, device servers, classes.
- People – hardware and software developers.

TANGO database
- Master-master semi-synchronous replication.
- HAProxy routes MySQL traffic to primary/backup MySQL backend.
- MySQL backends run on containers (OpenVZ) on local SSD for performance reasons.
- Hourly MySQL dumps.

NicaControls DB web manager:
- Tree view to display subsystems hierarchy.
- Plain tables output.
- Sorting, filtering, navigation.
- Role-based administration.