The detectors of MPD will provide:

- High multiplicity (~ 1000)
- Near perfect spatial resolution (σ < 0.6 mm)
- Low momentum resolution (Δp/p ≤ 3%)
- Good Two track resolution
- Excellent event rate capability and reliable event separation.

**Example of the event in MPD**

**Central barrel of Multi Purpose Detector (MDP)**

**Magnet:**
- SC solenoid
- B0 = 0.5 T
- Status of some parts of the TPC for the MPD at the NICA project

**Central part of the MDP mock up with TPC cut**

**TPC basic parameters**

<table>
<thead>
<tr>
<th>Item</th>
<th>Dimension</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length of the TPC</td>
<td>340 cm</td>
</tr>
<tr>
<td>Outer radius of vessel</td>
<td>140 cm</td>
</tr>
<tr>
<td>Outer radius of drift volume</td>
<td>60 cm</td>
</tr>
<tr>
<td>Outer radius of drift volume</td>
<td>34 cm</td>
</tr>
<tr>
<td>Length of the drift volume</td>
<td>163 cm</td>
</tr>
<tr>
<td>Cathode</td>
<td>140 V/cm</td>
</tr>
<tr>
<td>Electric field strength</td>
<td>~140 V/cm for Ar/CH4</td>
</tr>
<tr>
<td>Magnetic field strength</td>
<td>1.5 Tesla/cm</td>
</tr>
<tr>
<td>Drift gas</td>
<td>90% Ar + 10% CH4</td>
</tr>
<tr>
<td>Gas amplification factor</td>
<td>3 x 10^6</td>
</tr>
<tr>
<td>Drift velocity</td>
<td>3.5 x 10^5 cm/s for P10 gas mixture</td>
</tr>
<tr>
<td>Temperature stability</td>
<td>~50 °C</td>
</tr>
<tr>
<td>Random chambers</td>
<td>24 (10 per plane)</td>
</tr>
<tr>
<td>Significant ionization</td>
<td>10</td>
</tr>
<tr>
<td>Pad size</td>
<td>3.1 x 1.2 mm</td>
</tr>
<tr>
<td>Number of pad</td>
<td>95232</td>
</tr>
<tr>
<td>Pad row number</td>
<td>35</td>
</tr>
<tr>
<td>Electronics stopping time</td>
<td>~100 ns</td>
</tr>
</tbody>
</table>

**MPS event display**

- 4 lasers (special option) - commissioned
- Laser beam splitter - delivered to JINR
- Laser beam monitors - prototype under tests

**ROC chamber + electronics integration:**

- Laser beams layout - under finalization
- Full set of micro-mirrors - assembled
- Gas supply system
  - TPC gas flow, nominal: 200 l/min
  - TPC gas flow, range: 0-50 l/min
  - Electric field strength: ~ 140 V/cm
  - Magnetic field strength: 1.5 Tesla/cm
  - Gas amplification factor: 3 x 10^6
  - Drift velocity: 3.5 x 10^5 cm/s for P10 gas mixture
  - Temperature stability: ~50 °C
  - Random chambers: 24 (10 per plane) sections
  - Significant ionization: 10
  - Pad size: 3.1 x 1.2 mm
  - Number of pads: 95232
  - Pad row number: 35
  - Electronics stopping time: ~100 ns

**TPC laser calibration system**

- Laser "planes" ~ 4-8
- Points per plane: ~ 4
- Beams per point: 7
- Laser "tracks", N = 224

**TPC structure**

- 1 - MWPC; 2 - HV electrode; 3 - Field cage; 4 - FEE position; 5 - End cap
- Thermal screen (Al)

**T0, Triggering:**
- FFD

**Material budget:**
- Low material budget (up to 1027 l)

**Gas mixture:**
- Ar + 3% CH4, P10

**Status - commissioned (Bld.217)**

- Barrel part - shorter and fixed to TPC instead TOF structure

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- Laser "planes" ~ 4-8
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