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Spherical Neutral Detector tracking system for experiments at VEPP-2000 e⁺e⁻ collider

The new tracking system of the Spherical Neutral Detector for experiments at the VEPP-2000 e⁺e⁻ collider in Novosibirsk is described. The system consists of 9-layer drift chamber with 24 jet cells and proportional chamber in a common gas volume. Main system features are its small size and high density of readout electronics channels. The drift chamber provides at least 4 measurements along the track for charged particles within 94 % solid angle and 9 measurements for particles at large angle with beam axis. Design angular resolutions for radial tracks are $\sigma\phi = 0.2$ degrees, $\sigma\theta = 0.3$ degrees, the vertex resolution is $\sigma R = 0.2$ mm. The full-size prototype of the tracking system is assembled and tested. The wire structure of the prototype is tensioned in one quadrant of the chamber. Results of the prototype assembly quality control and tests with radioactive sources and cosmic rays are presented. They are in good agreement with expected system parameters.

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