Nearby Dwarf Galaxies
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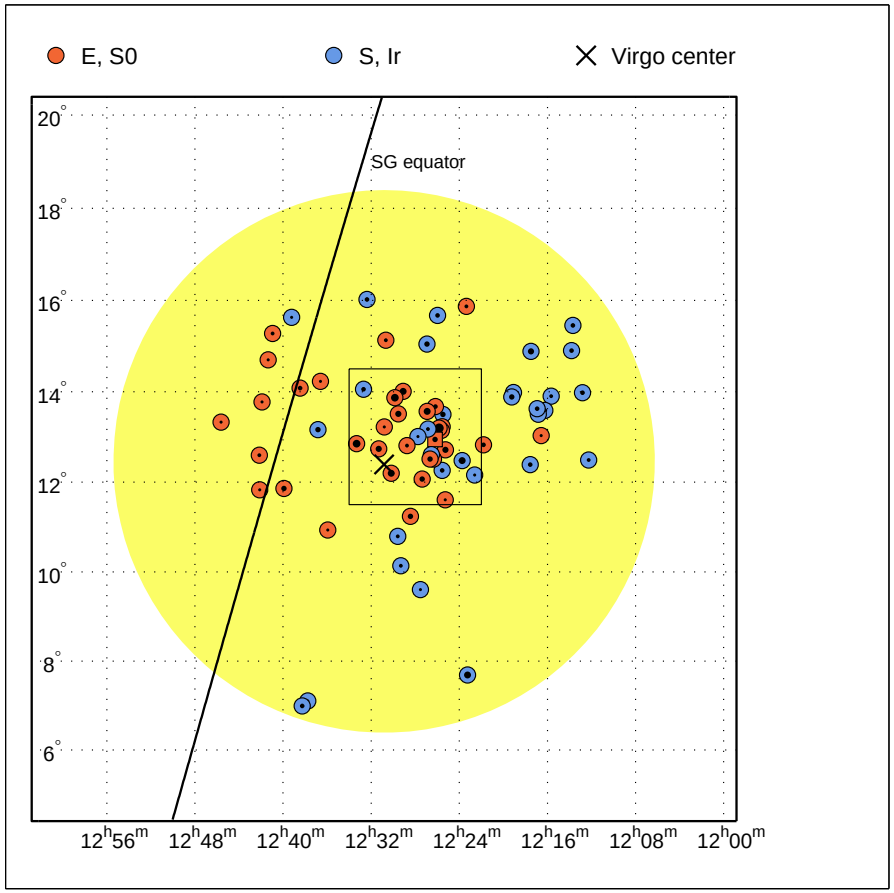
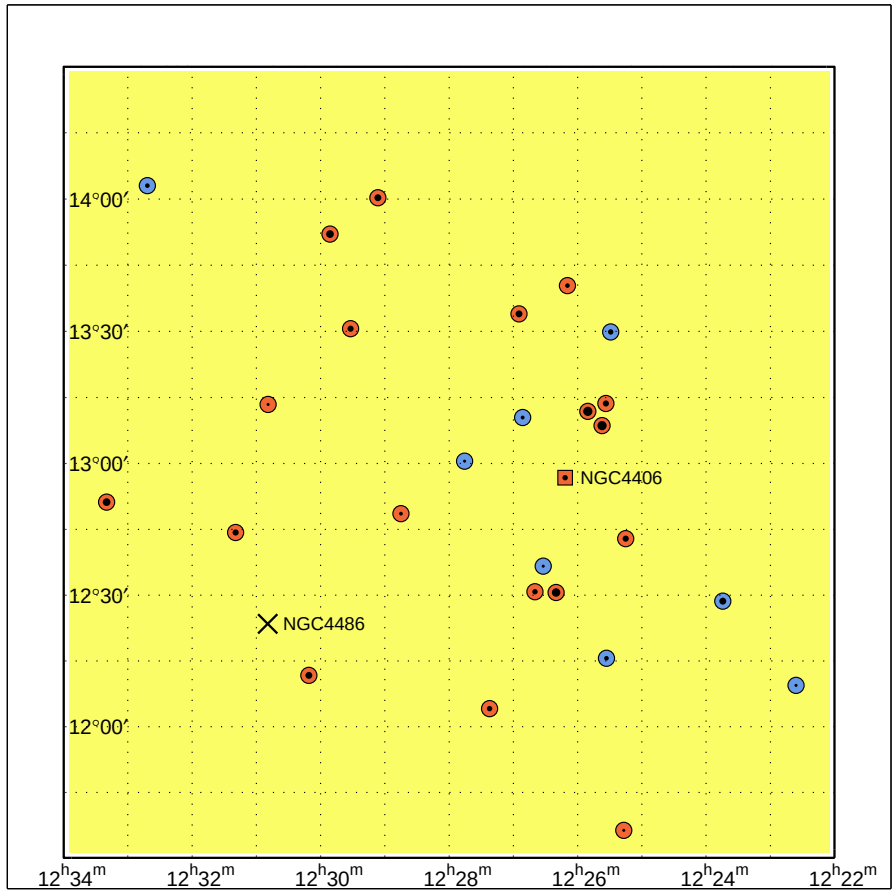
Blueshifted galaxies in the Virgo cluster

I. D. Karachentsev, O. G. Nasonova (Kashibadze)
Special Astrophysical Observatory, Russia

We consider a sample of 65 galaxies in the Virgo cluster that have negative radial velocities with respect to the Local group. Some properties of the sample are noticed.





Galaxies with negative velocities in equatorial coordinates. The yellow circle is virial zone of the cluster ($\Theta_{VIR} = 6.0°$). The cross marks M87 as the physical center of the cluster, the inclined line represents the supergalactic equator.

According to the Virgo Cluster Catalogue (=VCC, Binggeli et al., 1985), the population of the cluster accounts more than 2000 members, most of them are dwarf urregular (dIr), elliptical (dE) and spheroidal (dSph) systems. Assuming that Virgo distance is 17.0 Mpc (Tonry et al. 2001), dwarfs galaxies ($M_B < -16.5^m$) make up 80% of the sample. There is only one elliptical galaxy (NGC 4406) among 13 galaxies of normal and high luminosity.

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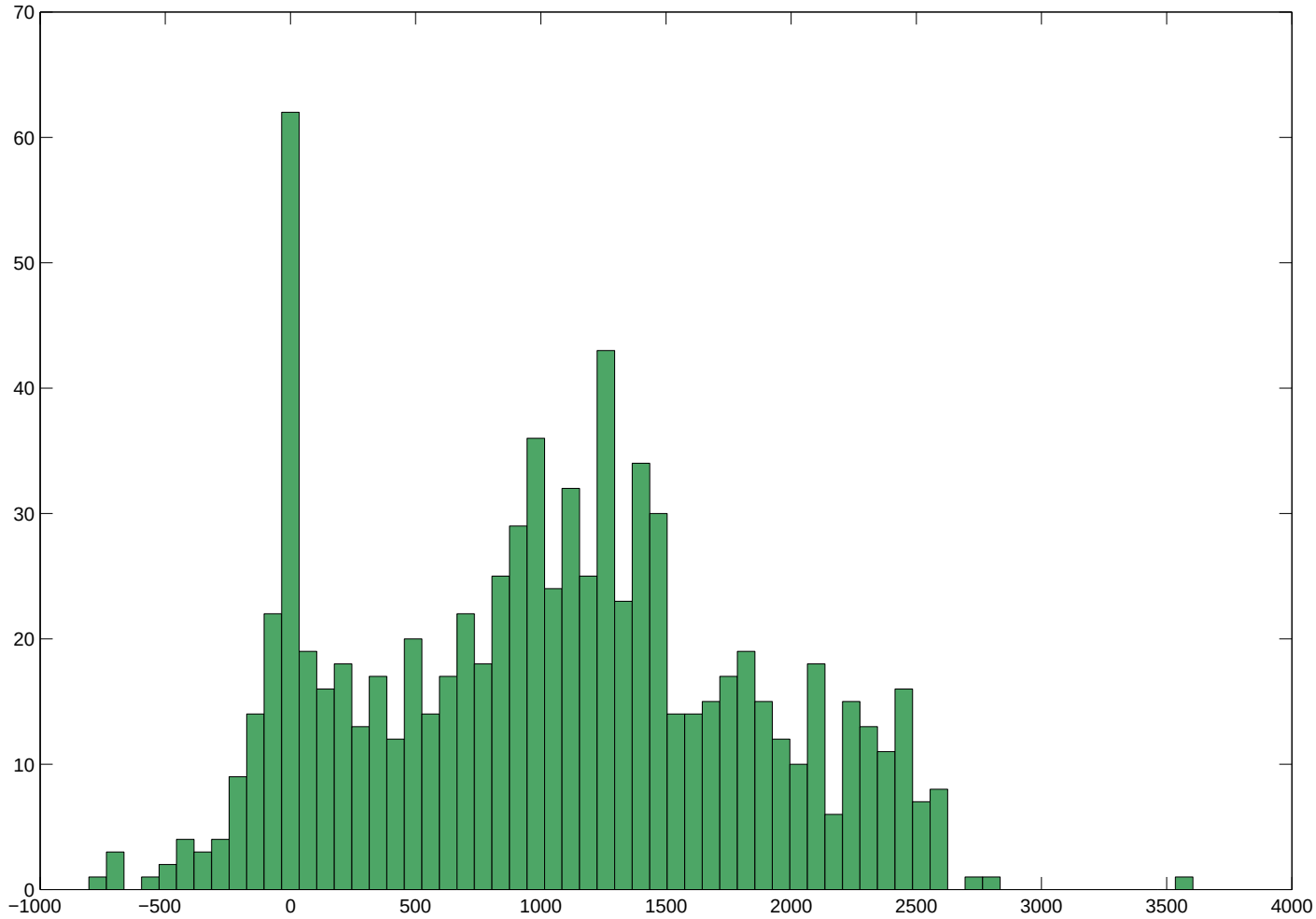
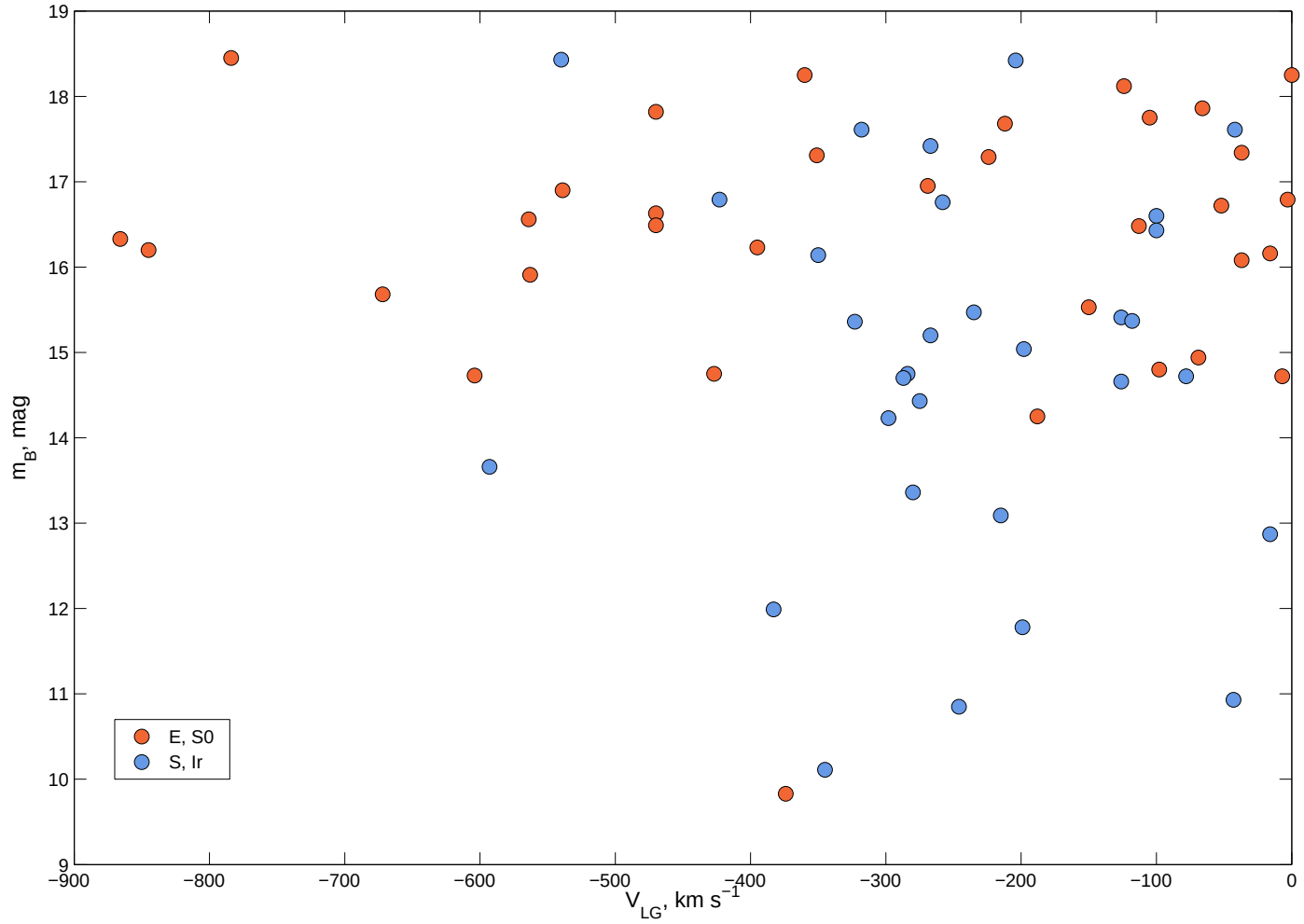
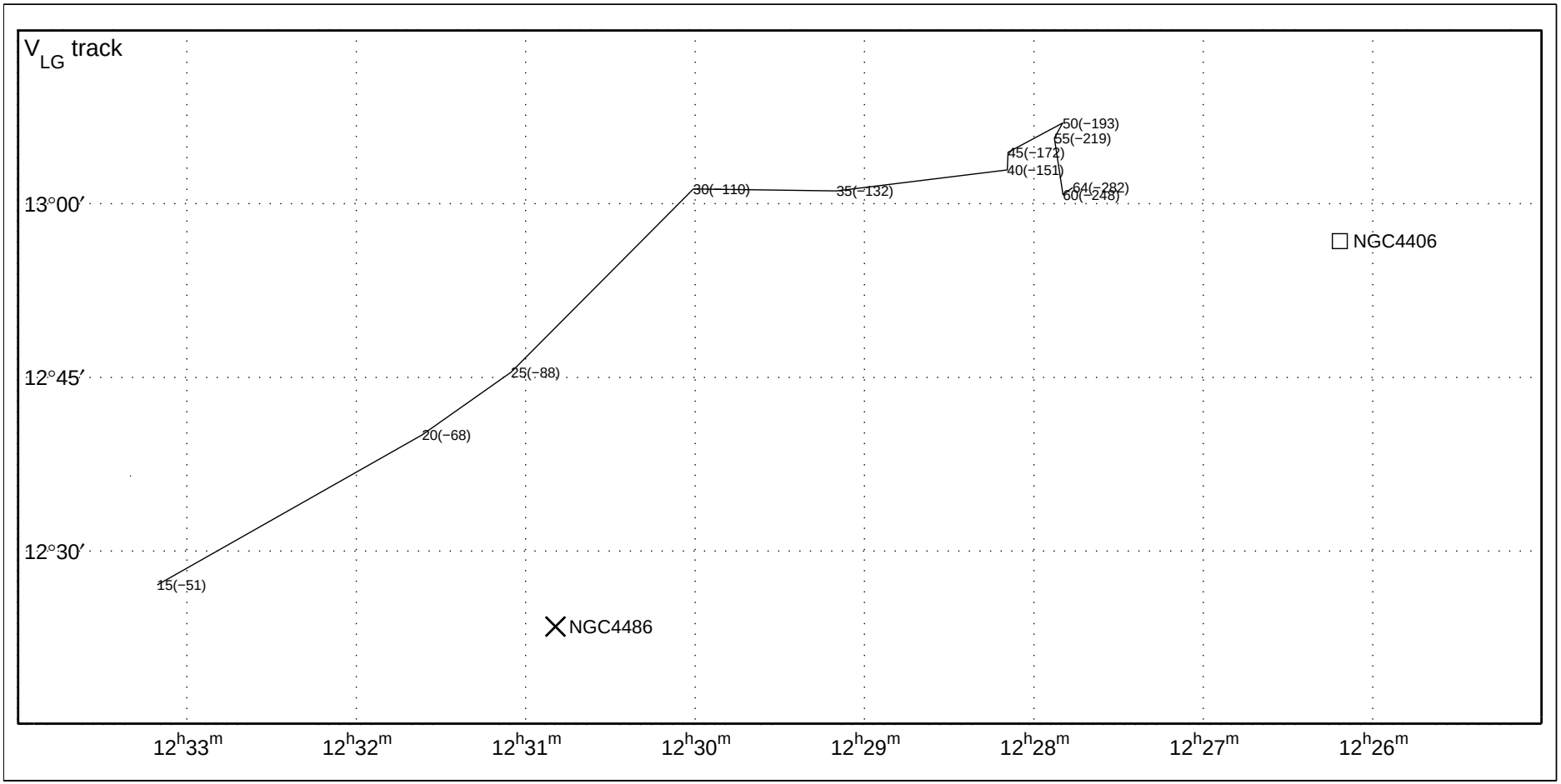
- Surprisingly, dwarf galaxies of the sample (both early-type and late-type) exhibit a clumpiness on a scale of 10 arcmin (50 kpc). The median velocity difference in such pairs and triplets is about 70 km/s.



The radial velocity distribution of ~ 800 galaxies in the central part of the Virgo cluster. A sharp peak near $V_h \simeq 0$ is due to the effect of "stellar spam" produced by binary stars presented as galaxies in LEDA database.



The radial velocity V_{LG} – magnitude m_B distribution of sample objects. Early-type galaxies (E, S0, dE, dSph) are marked with red circles and late-type galaxies(S, dIr, BCD) with blue ones.



The centroid drift for galaxies ranged by V_{LG} from zero to the extremal negative velocity (-866 km/s). The number of averaged galaxies (and their mean radial velocity) are given near running centroid positions.

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A new attempt is made by us to explain this phenomenon by the tangential motion of the Local group regarding to the Virgo cluster.

Tully et al. (2008) determined three components of the Local Group Velocity in the 3K frame:
Virgocentric flow (185 ± 20) km/s,
pushing away from the Local Void (259 ± 25) km/s,
motion towards the Great Attractor (455 ± 15) km/s.
The observed tangential velocity agrees with this picture both in amplitude and direction.