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Collapse Condition for a Spherically Symmetric Static Universe
DMITRI RABOUNSKI, LARISSA BORISSOVA — A static model of a universe has been obtained from Einstein's equations for a gravitational field inside a sphere of a radius A, filled with a incompressible liquid of a constant density 10^{-31} g/cm^3. It is shown that gravitational collapse occurs in the scale 11.94×10^{28} cm $<$ R $<$ 12.69×10^{28} cm so that the gravitational radius is $R_g \leq A$: at the Hubble radius, $R_H = 1.3 \times 10^{28}$ cm, collapse is impossible. Two models are considered: 1) a Hubble universe ($A = R_H$); 2) a universe containing a collapsar inside ($R_g < A$). Both cases contain a gravitational inertial force of repulsion, which is proportional to distance R. Three-dimensional curvature is negative and constant in the both cases. Four-dimensional curvature is 1) positive always in a Hubble universe (Case 1, $A = R_H$), 2) increasing from a negative value on the sphere's radius A, then getting zero value within the sphere up to positive infinity on the collapsar's surface (Case 2, $A > R_g$). Redshift in both models is due to the repulsing gravitational inertial force (not the Doppler effect), and is a square function of distance at large R.

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