

The improved model of potential for irregular bodies.

P.Bartczak¹, S.Breiter²

¹*Adam Mickiewicz University in Poznan,
ul.Sloneczna 36, Poland. E-mail: przebar@amu.edu.pl*

²*Adam Mickiewicz University in Poznan,
ul.Sloneczna 36, Poland. E-mail: breiter@amu.edu.pl*

The potential of a small irregular body is usually approximated as the potential of a triaxial ellipsoid having no simple analytical form, or by means of spherical harmonics expansion which may be divergent near the body's surface. We propose the model of the potential generated by two massive straight segments. A similar model, based on one segment, was studied by Riaguas et al. (1999). Their model, however, properly represents only a single family of spheroids with the particular value of $b/a \approx 0.456$, regardless of the segment's mass and length. Combining two segments we can well approximate any ellipsoid, if one of the segments is allowed to have an imaginary length. The model has a simple analytical form and we show, that it well describes the potential of an irregular body, even close to its surface.