ON THE SHAPE OF THE RED BLOOD CELLS

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The shape of erythrocytes is modeled under the hypothesis that the bending energy density is constant and proportional to the square of the normal curvature averaged for all normal sections passing through each point. The transversal profile is shown to be the union of two different analytic curves. The hypothesis of constant mean curvature, which yields the same variational functional, is also analyzed. Both cases describe the geometry of the RBC surface well enough only for a non-null spontaneous curvature. Exact and approximate formulas for the erythrocyte areas and volumes are also provided.

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