

$$D_B(F) = F_{xx}F_y^2 - 2F_{xy}F_xF_y + F_{yy}F_x^2,$$

$$k = \frac{|D_B(F)|}{|\nabla F|^3}$$

$$\Gamma_{ij}^k = \frac{1}{2}(g_{il;j} - g_{ij;\ell} + g_{j\ell;i})g^{\ell k},$$

$$K = \frac{2}{g_{11}} \left(\Gamma_{1[1;2]}^2 + \Gamma_{1[1}^j \Gamma_{2]j}^2 \right)$$