asdf

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1 Introduction

$$\nabla^2 = \frac{1}{h_1 h_2 h_3} \sum_{\text{cyclic}} \frac{\partial}{\partial u_i} \left(\frac{h_j h_k}{h_i} \right) \frac{\partial}{\partial u_i}$$
$$= \frac{2\sqrt{d^2(1+\xi^2)\csc(\gamma)^2}}{d^4\xi(1+2\xi^2-\cos(2\gamma)} \left(\partial_\xi \left(\xi\sqrt{d^2(1+\xi^2)}\sin(\gamma)\partial_\xi \right) + \partial_\gamma \left(\xi\sqrt{\frac{d^2}{1+\xi^2}}\sin(\gamma)\partial_\gamma \right) + \partial_\phi \left(\sqrt{\frac{d^2(\xi^2\csc(\gamma)+\sin(\gamma))^2}{xi^2+xi^4}} \right) \partial\phi \right)$$

$$\nabla^2 = \frac{\sqrt{1+\xi^2}}{d^2(\xi^2+\sin^2(\gamma))\xi} \left(\partial_\xi \left(\xi\sqrt{1+\xi^2}\partial_\xi \right) + \frac{1}{d^2(\xi^2+\sin^2(\gamma))\sin(\gamma)} \partial_\gamma \left(\sin(\gamma)\partial_\gamma \right) + \frac{1}{d^2\xi^2\sin^2(\gamma)} \partial_\phi^2 \right)$$

$$\frac{4}{d^3(\sin(\gamma)+4\xi^2\sin(\gamma)+\sin(3\gamma)} \left(\partial_\xi \left(d(1+\xi^2)\sin(\gamma) \right) \partial_\xi + \partial_\gamma \left(d\sin(\gamma)\partial_\gamma \right) + \partial_\phi \left(\frac{(1+2\xi^2+\cos(2\gamma))\sqrt{d^2\csc^2(\gamma)}}{2(1+\xi^2)} \partial_\phi \right) \right)$$

$$\nabla^2 = \frac{1}{d^2(\xi^2+\cos^2(\gamma))} \left(\partial_\xi \left((\xi^2+1)\partial_\xi \right) + \frac{1}{\sin(\gamma)} \partial_\gamma \left(\sin(\gamma)\partial_\gamma \right) \right) + \frac{1}{d^2(\xi^2+1)\sin^2(\gamma)} \partial_\phi^2$$