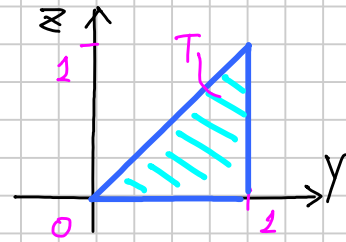


$$\vec{E} = (0, xy, xz)$$

$$S: (z^2 + y, y, z) \quad (y, z) \in T$$

$$T: 0 \leq z \leq y \leq 1$$



$$\Phi(y, z) = (z^2 + y, y, z)$$

$$\begin{matrix} \Phi_y \\ \Phi_z \end{matrix} \begin{pmatrix} 1 & 1 & 0 \\ 2z & 0 & 1 \end{pmatrix} \leadsto M_1 = 1 \quad M_2 = -2 \quad M_3 = -2z$$

\vec{m} ORIENTATA VERSO x^+

$$\int_S \vec{E} \cdot \vec{m} \, d\sigma = \int_T [0 \cdot 1 - (z^2 + y)y + (z^2 + y)z(-2z)] \, dy \, dz =$$

$$= \int_0^1 \int_0^y (-z^2 y - y^2 - 2z^3 - 2z^2 y) \, dz \, dy =$$

$$= \int_0^1 \left[-\frac{z^3}{3} y - z y^2 - \frac{2z^4}{5} - \frac{2z^3}{3} y \right]_0^y \, dy = \int_0^1 \left(-\frac{y^4}{3} - y^3 - \frac{2y^5}{5} - \frac{2}{3} y^4 \right) \, dy$$

$$= \int_0^1 \left(-y^4 - y^3 - \frac{2}{5} y^5 \right) \, dy = \left[-\frac{y^5}{5} - \frac{y^4}{4} - \frac{2}{30} y^6 \right]_0^1 =$$

$$= -\frac{1}{5} - \frac{1}{4} - \frac{1}{15} = \frac{-12-15-4}{60} = -\frac{31}{60}$$