$$f(c_1, c_2) :=$$

$$\beta \leftarrow \frac{C_f}{(C_f + C_s)\cdot(1 + c_1)}$$

$$C_{gg1} \leftarrow c_1\cdot(C_s + C_f)$$

$$C_{gg2} \leftarrow c_2\cdot C_L$$

$$C_{db1} \leftarrow k_{dbp}\cdot C_{gg1}\cdot\frac{L_{min}}{L_1}$$

$$C_{db3} \leftarrow \frac{pidw\left(L_1, 10\frac{S}{A}\right)}{nidw\left(L_3, 10\frac{S}{A}\cdot g_{31}\right)}\cdot C_{db1}\cdot\frac{k_{dbn}}{k_{dbp}}$$

$$C_{db2} \leftarrow k_{dbn}\cdot C_{gg2}\cdot\frac{L_{min}}{L_2}$$

$$C_{db4} \leftarrow \frac{nidw\left(L_2, 10\frac{S}{A}\right)}{pidw\left(L_4, 10\frac{S}{A}\cdot g_{42}\right)}\cdot C_{db2}\cdot\frac{k_{dbp}}{k_{dbn}}$$

$$C_1 \leftarrow C_{db1} + C_{db3} + C_{gg2}$$

$$C_2 \leftarrow C_L + C_{db2} + C_{db4} + (1 - \beta)\cdot C_f$$

$$C_c \leftarrow 2\cdot\frac{\frac{1}{\beta}\cdot k_B\cdot T_r\cdot\gamma\cdot(1 + g_{31})}{N_{tot} - \frac{k_B\cdot T_r}{C_2}\cdot\left[\gamma\cdot(1 + g_{42}) + 1\right]}$$

$$g_{m1} \leftarrow \frac{1}{\beta}\cdot 2\cdot\pi\cdot f_c\cdot C_c$$

$$k \leftarrow \tan\left(\pi\cdot\frac{PM}{180\cdot deg}\right)$$

$$g_{m2} \leftarrow k\cdot 2\cdot\pi\cdot f_c\cdot\left(\frac{C_2\cdot C_1}{C_c} + C_1 + C_2\right)$$

$$f_{T1} \leftarrow \frac{1}{2\cdot\pi}\cdot\frac{g_{m1}}{C_{gg1}}$$

$$f_{T2} \leftarrow \frac{1}{2\cdot\pi}\cdot\frac{g_{m2}}{C_{gg2}}$$

$$gmID1 \leftarrow if\left(pgmid(L_1, f_{T1}) > 4\cdot\frac{1}{V}, pgmid(L_1, f_{T1}), 0.1\cdot\frac{1}{V}\right)$$

$$\text{gmID2} \leftarrow \text{if}\left(\text{ngmid}\left(L_2, f_{T2}\right) > 4 \cdot \frac{1}{V}, \text{ngmid}\left(L_2, f_{T2}\right), 0.1 \cdot \frac{1}{V}\right)$$

$$I_{Dtotal} \leftarrow \frac{g_{m1}}{\text{gmID1}} + \frac{g_{m2}}{\text{gmID2}}$$

$$I_{Dtotal}$$

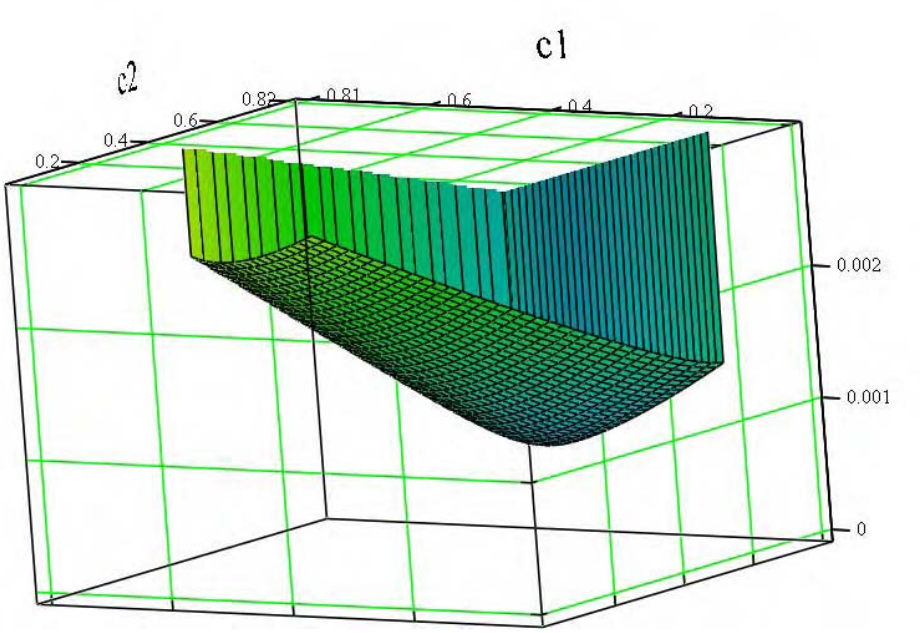
Initial guess for optimization $c_1 := 1$ $c_2 := 1$

Given $c_1 > 0$ $c_2 > 0$

$$C_{opt} := \text{Minimize}\left(f, c_1, c_2\right)$$

$$C_{opt} = \begin{pmatrix} 0.145 \\ 0.379 \end{pmatrix} \qquad f\left(C_{opt_0}, C_{opt_1}\right) = 0.989\ \text{mA}$$

$$M := \text{CreateMesh}(f, 0.01, 0.8, 0.01, 0.8, 40, 40)$$



M

Comments:
- Shallow power minimum for small c1 and c2
- the optimum is close to the "steep cliff" imposed by limiting gm/ID to practical values >4S/A in the objective function (in the power minimum, gm/ID1=4.7S/A, gm/ID2=7.7S/A)