Sprawozdanie z laboratorium nr 3 z przedmiotu Metody obliczeniowe w nauce i technice

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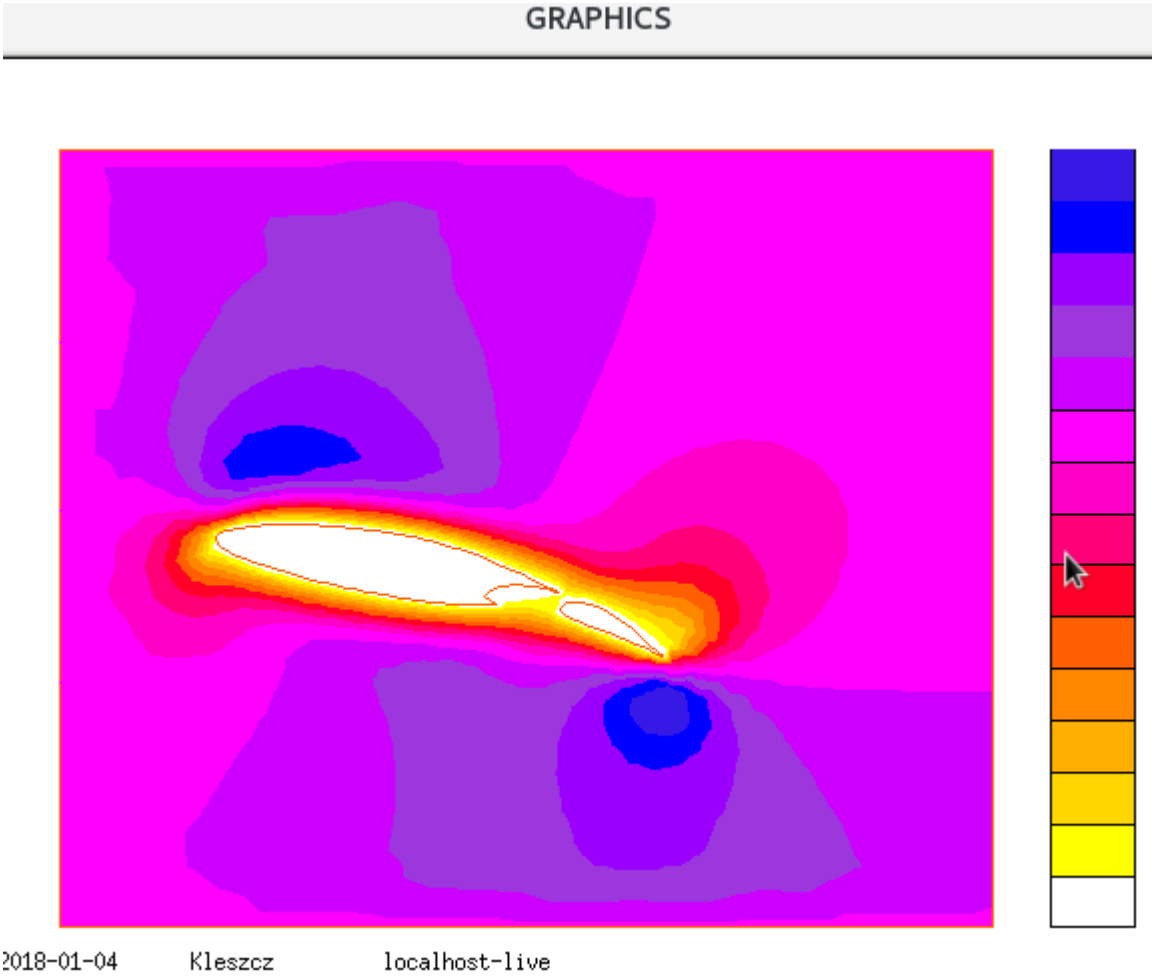
Zadanie 1 Program NS – 2D przepływy lepkie nieściśliwe (równania Naviera-Stokesa).

- Data_cav

Solve: 20

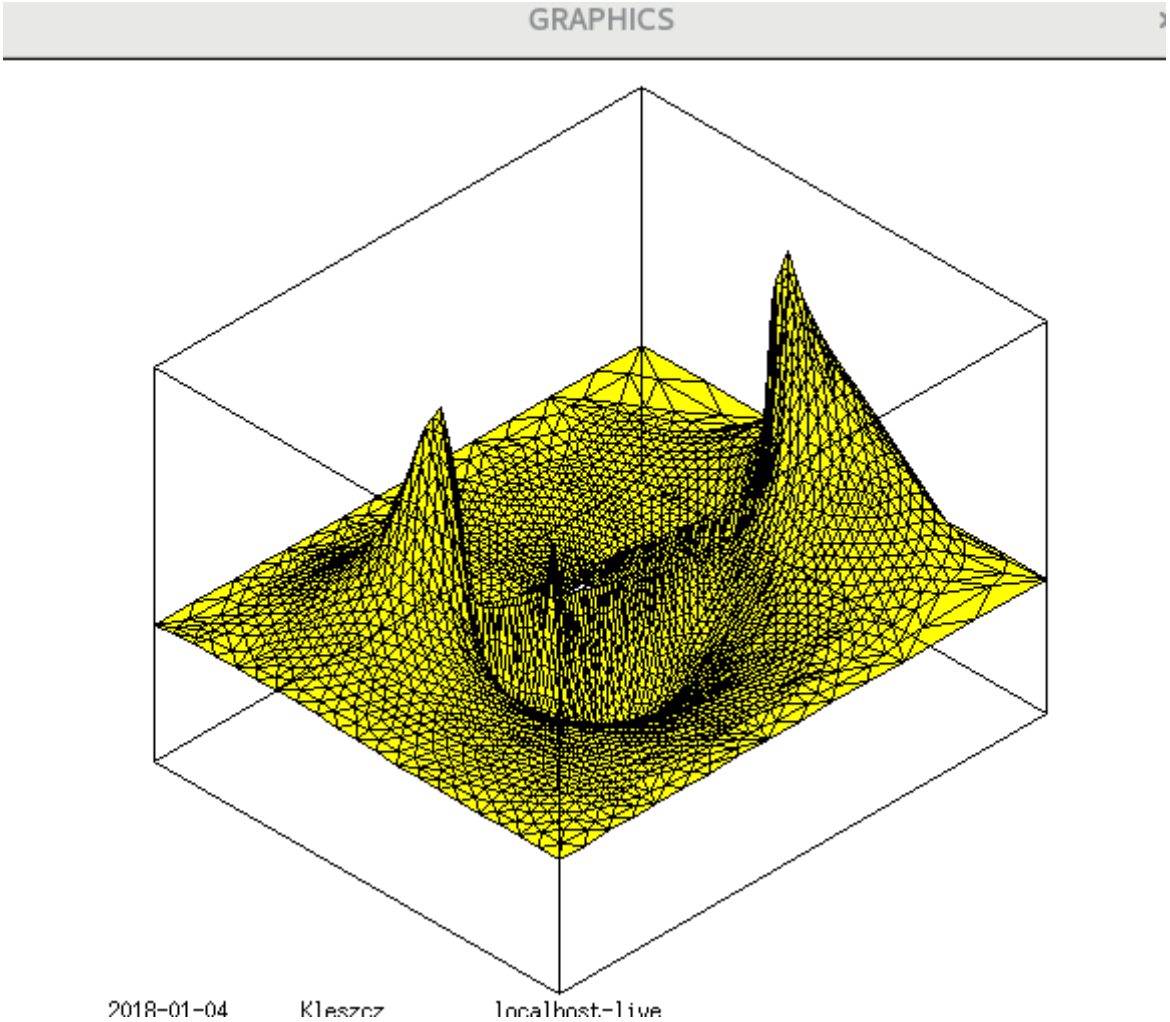
twodim



comp=1 –prędkość ux

Solve: 20

Tridim

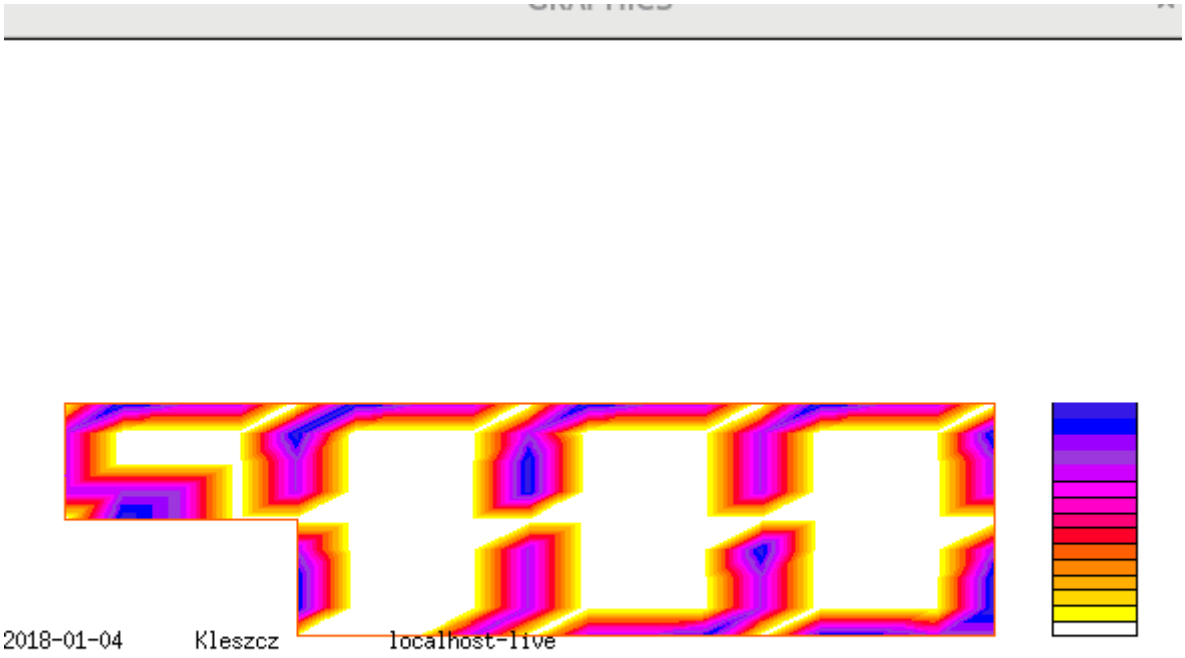


comp=2 -prędkość uy

- **Data_step**

Solve:10

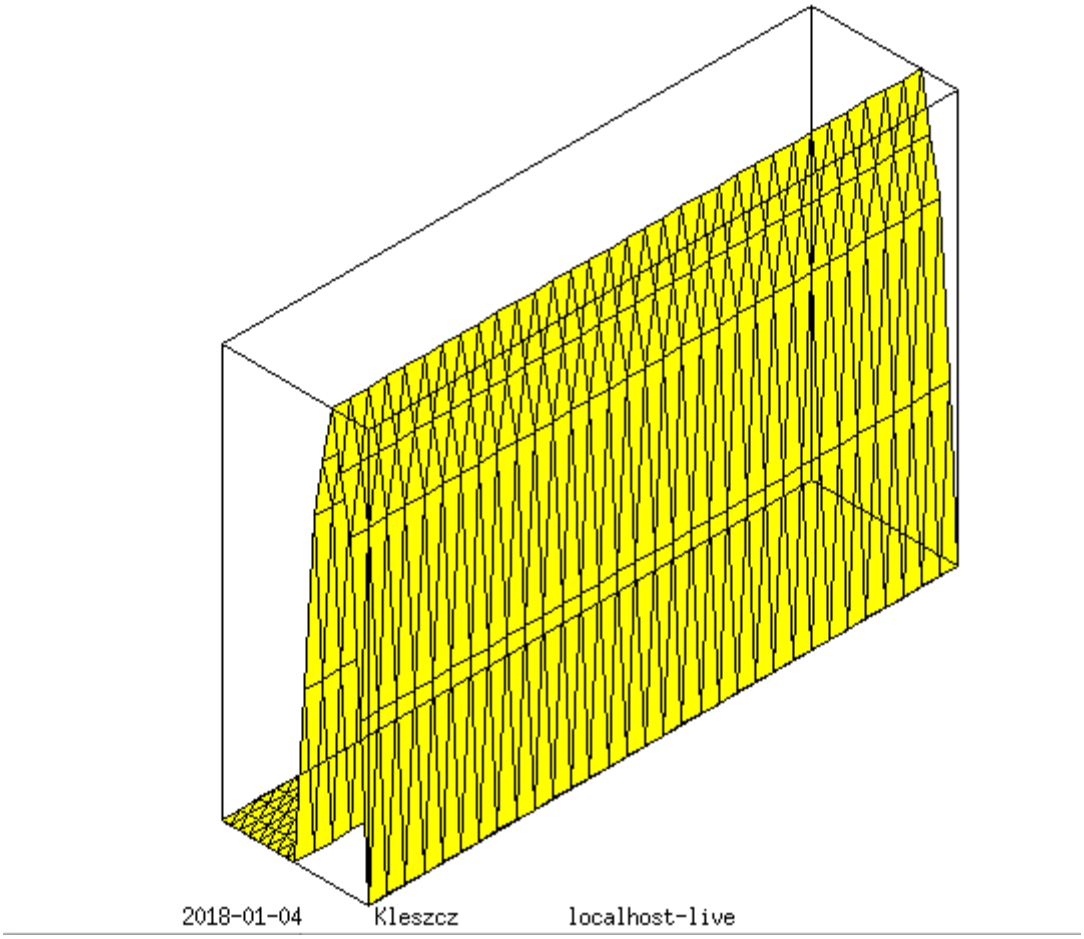
Twodim



comp=3 -ciśnienie p

Solve:10

Tridim



comp=2 -prędkość uy

Zadanie 2 Program EM – 2D równania elektryczności (Maxwella) harmoniczne w czasie.

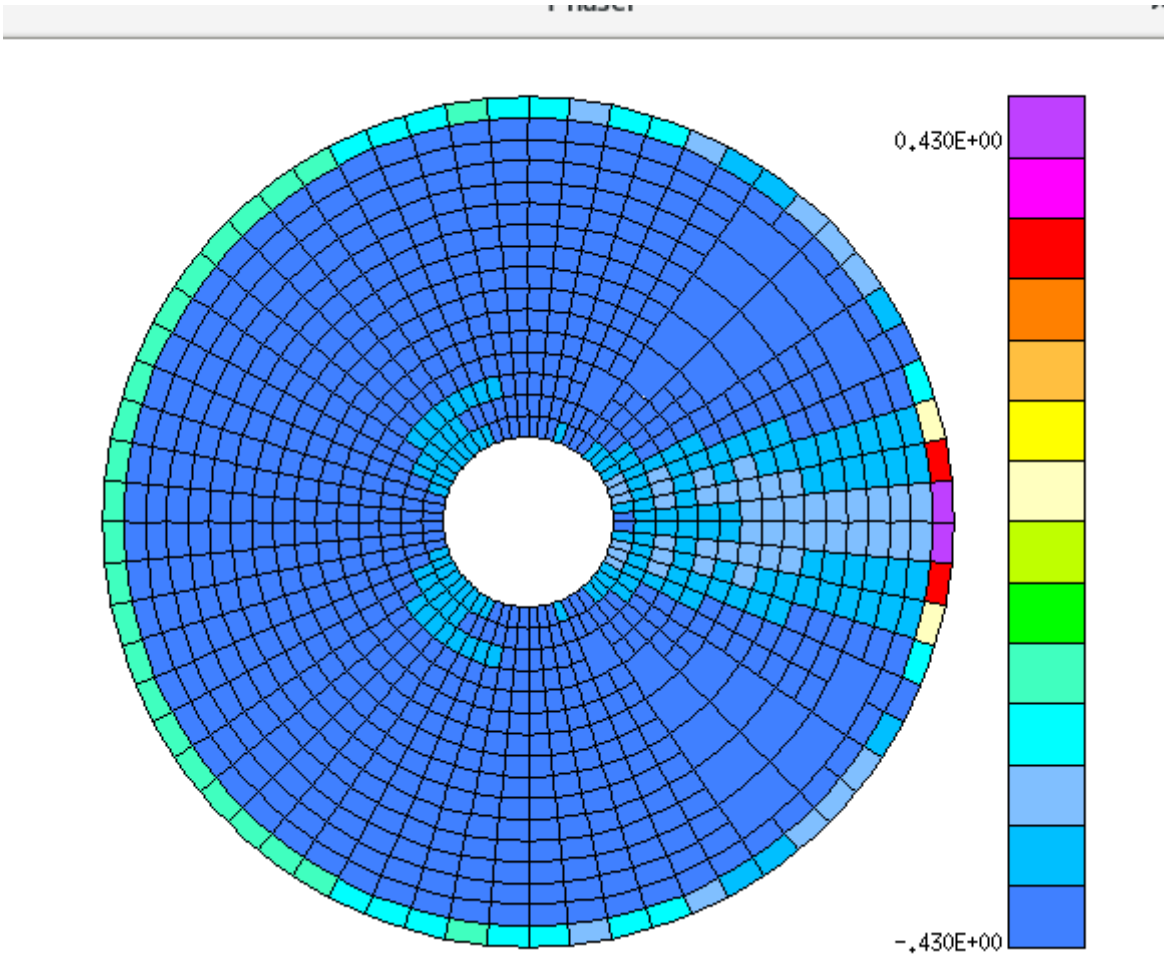
- **Data_cyl**

Omega: 1.0

Cyl 4

Angle: 180

Adapth

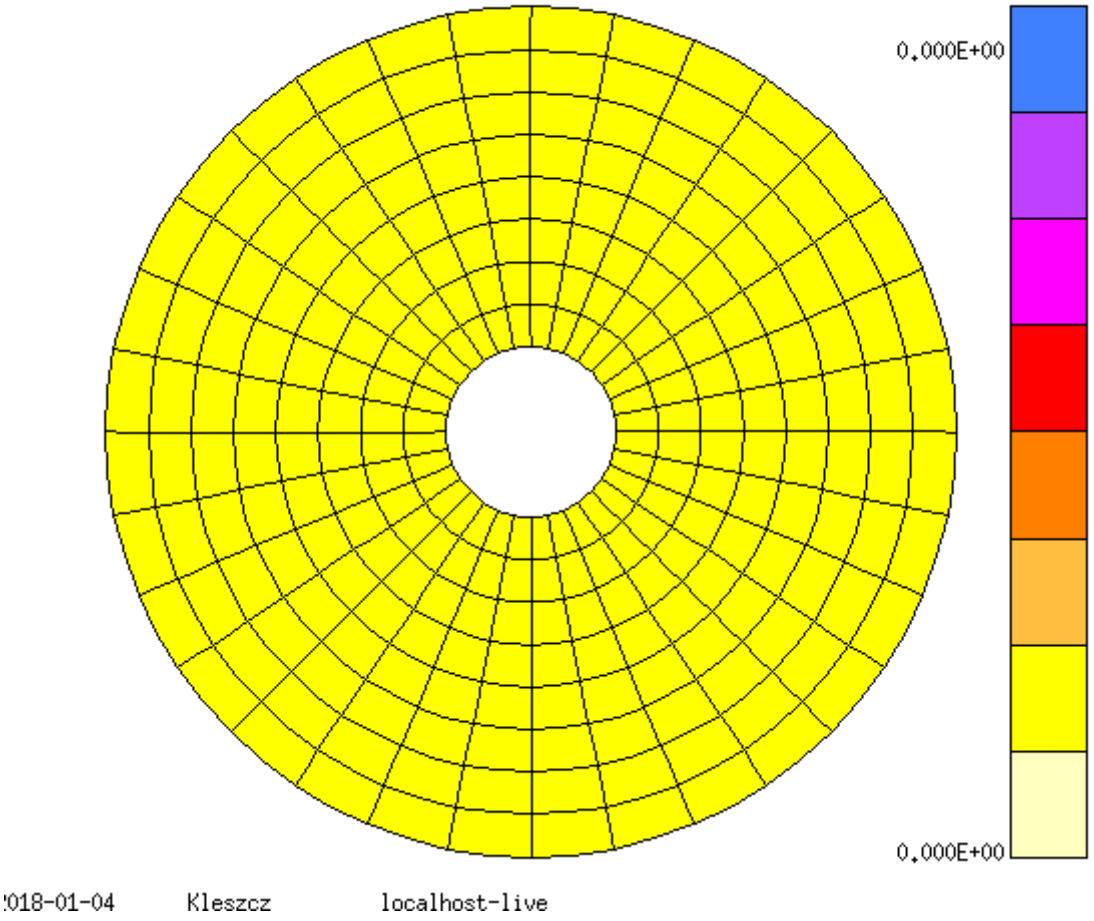


Comp= 1 -rzeczywiste pole elektryczne Ex

Omega: 1.0

diff 3

Angle: 120



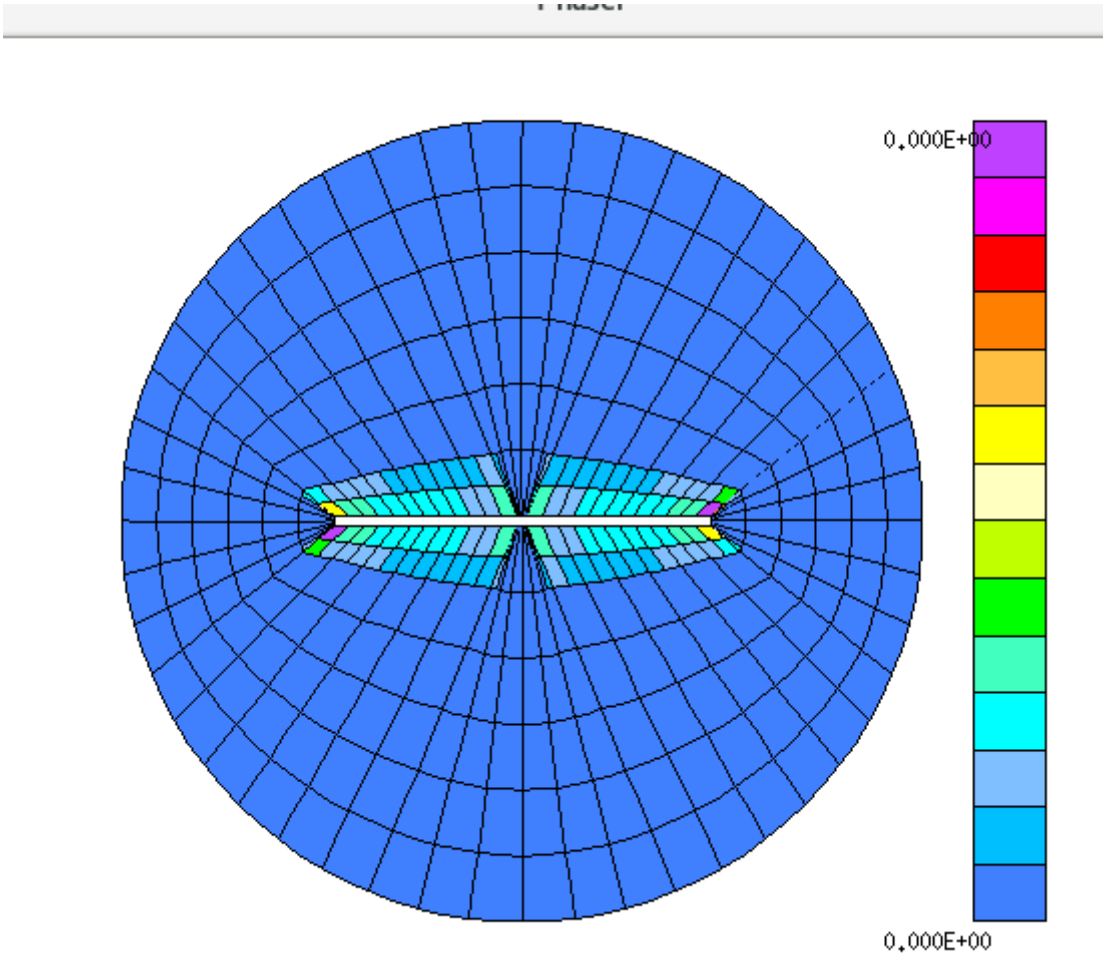
comp= 2 -rzeczywiste pole elektryczne Ey

- Data_dipol3

Omega: 0.5

Dipol 4

Angle: 120

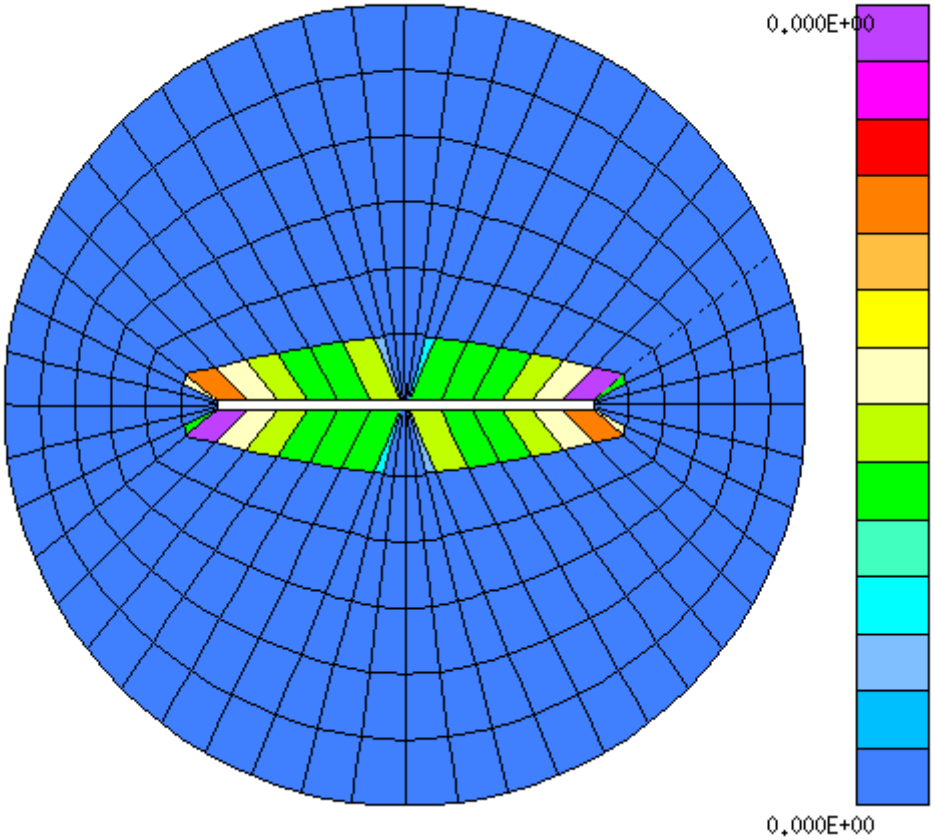


Comp = - 1 -urojone pole elektryczne Ex

Omega: 0.5

Dipol 4

Angle: 120



comp=-2 -urojone pole elektryczne Ey

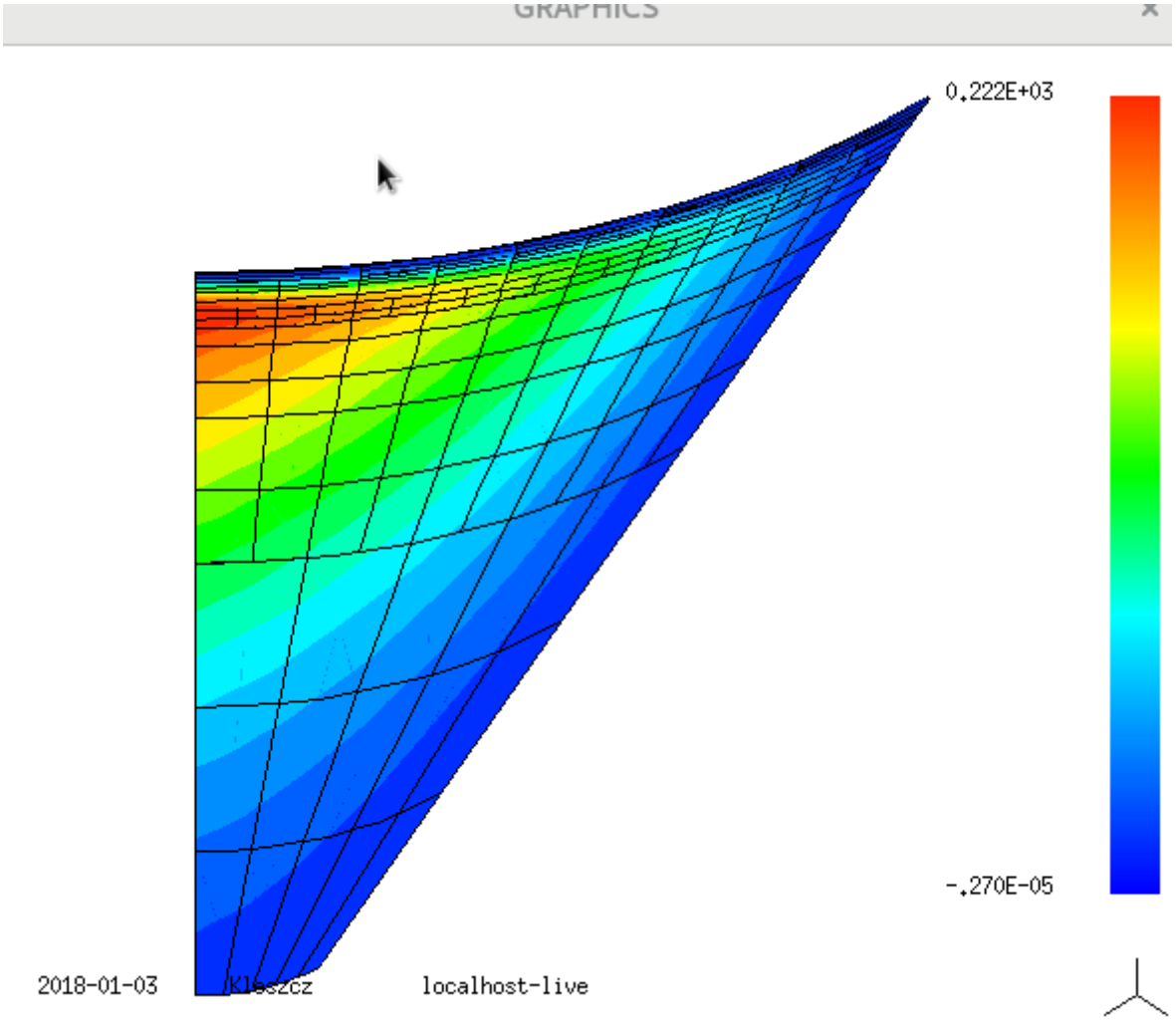
Zadanie 3 Program LE – 3D liniowa sprężystość

- Data_cone

Comp=101

Twodim

Adapth: 5

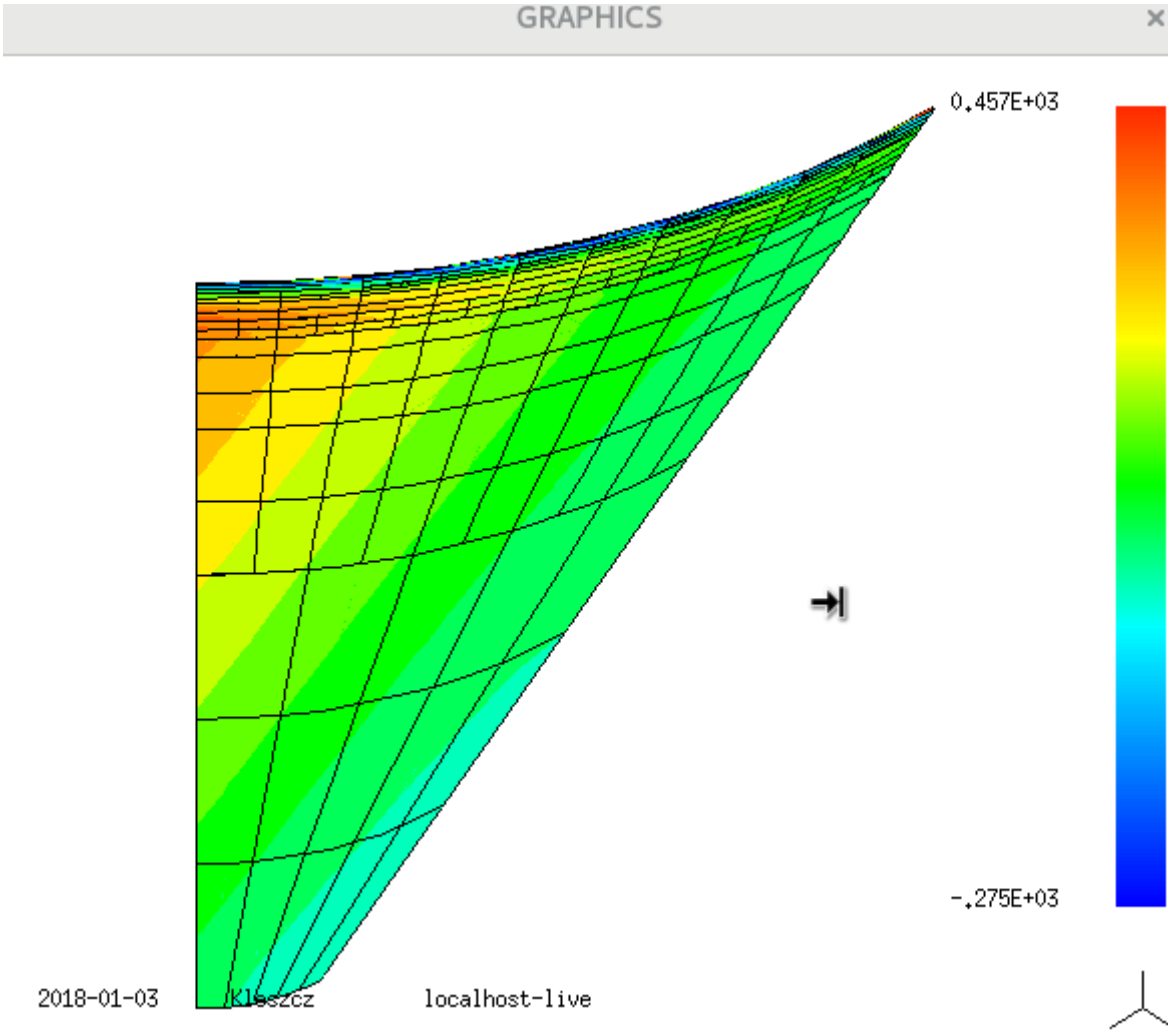


comp=101 -przemieszczenia ux

Comp=105

Twodim

Adapth: 5



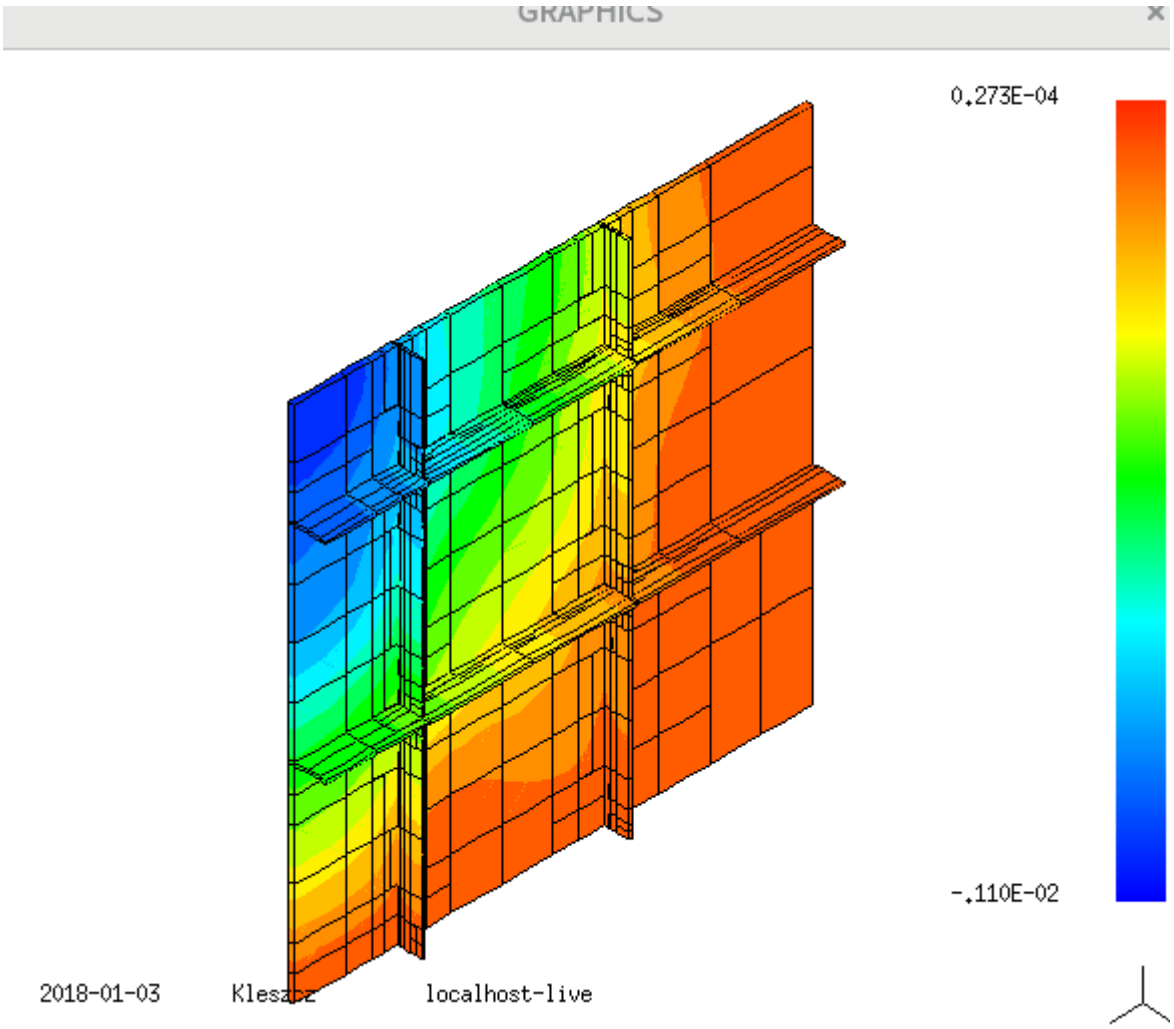
comp=105 naprężenia σyy

- Data_Plate

Comp=103

Twodim

Adapth: 6

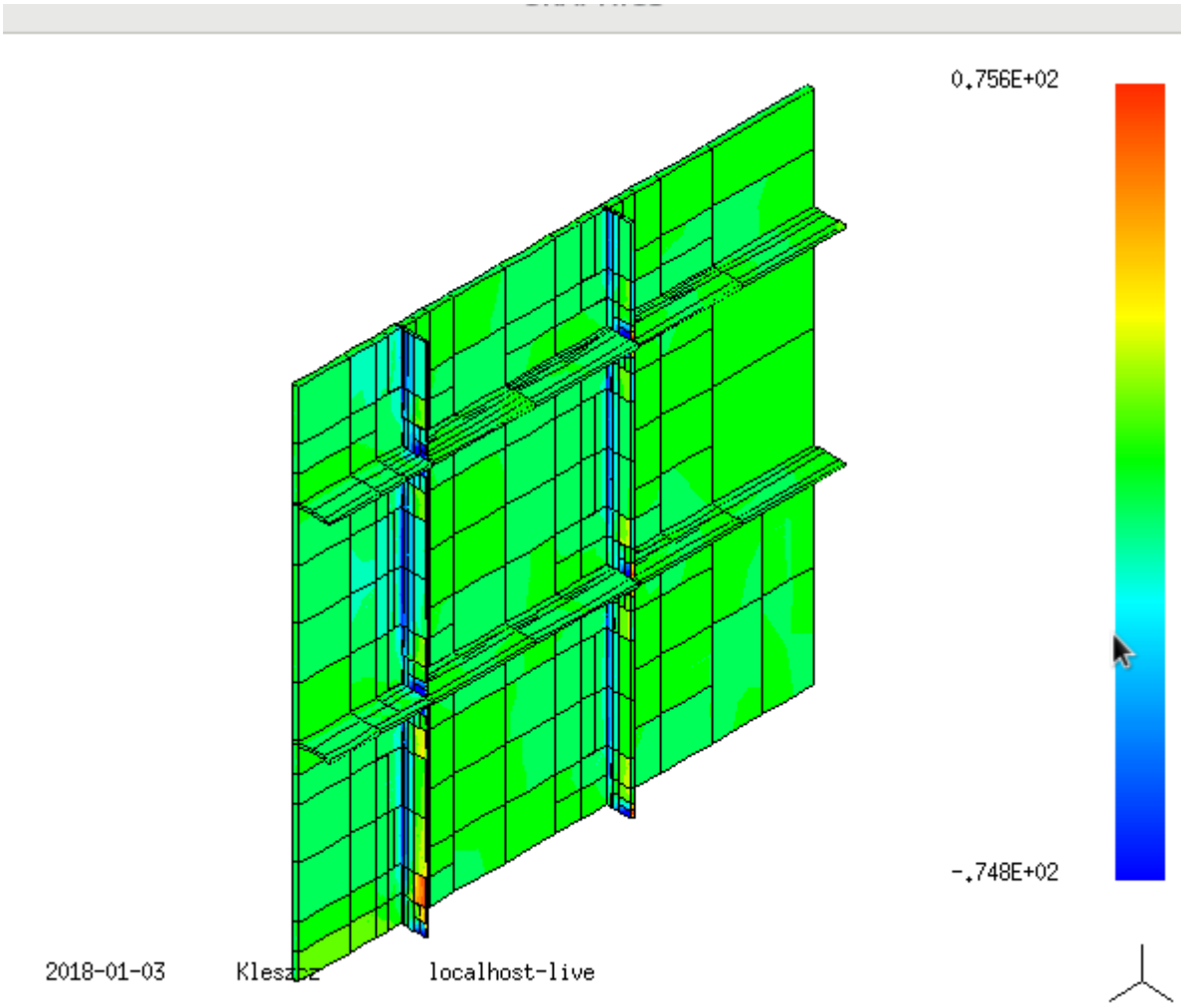


comp=103 -przemieszczenia uz

Comp=106

Twodim

Adapth: 6



comp=106 naprężenia σzz

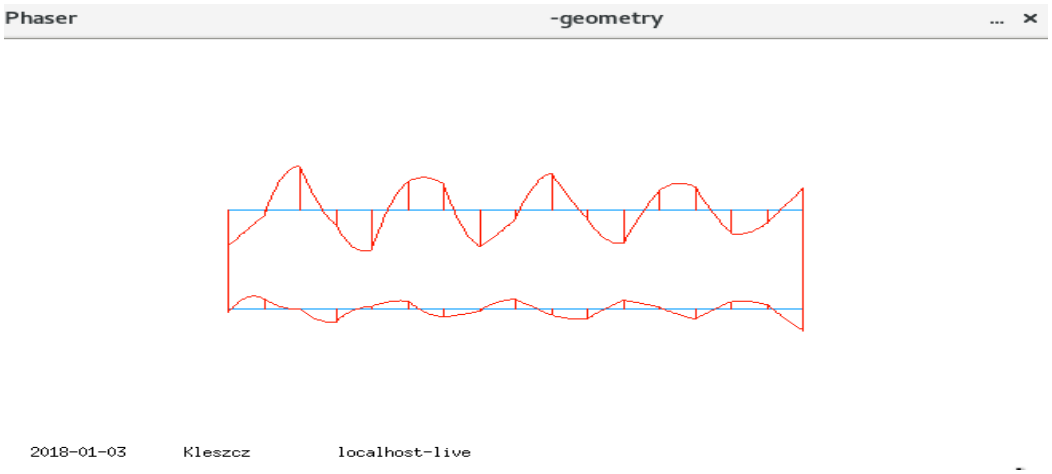
Zadanie 4 – Program BEM – 2D całka brzegowa dla równań Maxwella

- **Data_rect**

Omega = 15

Set incydent angle: 200

Comp=-1

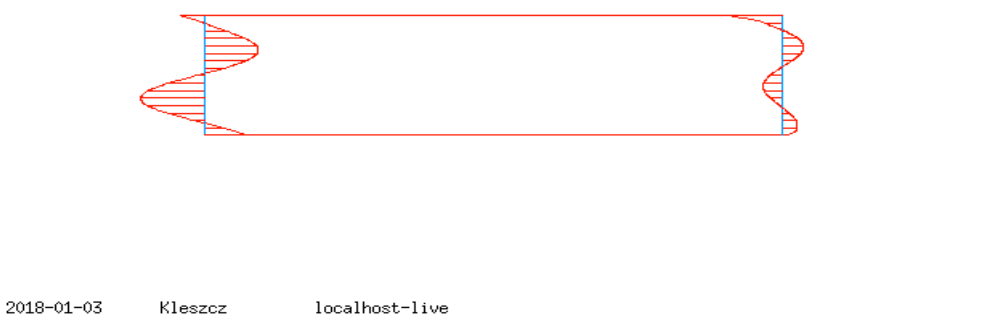


Urojony prąd elektryczny Jx

Omega = 18

Set incydent angle: 300

Comp=2



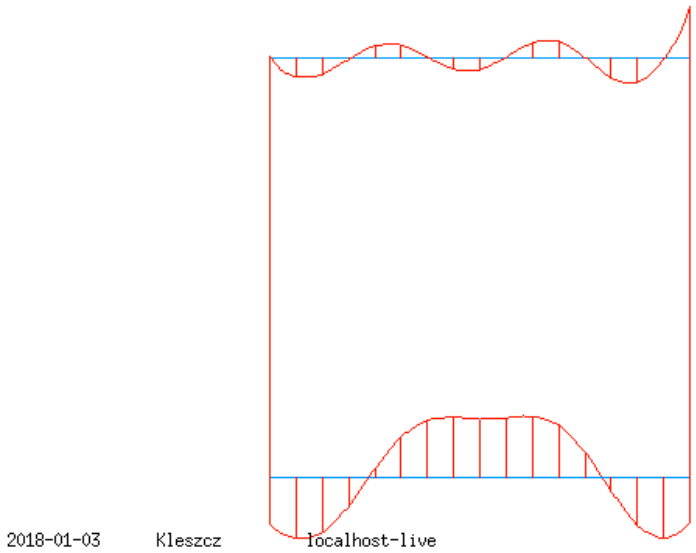
Rzeczywisty prąd elektryczny Jy

- data_squate

Omega = 11

Set incydent angle: 110

Comp=1

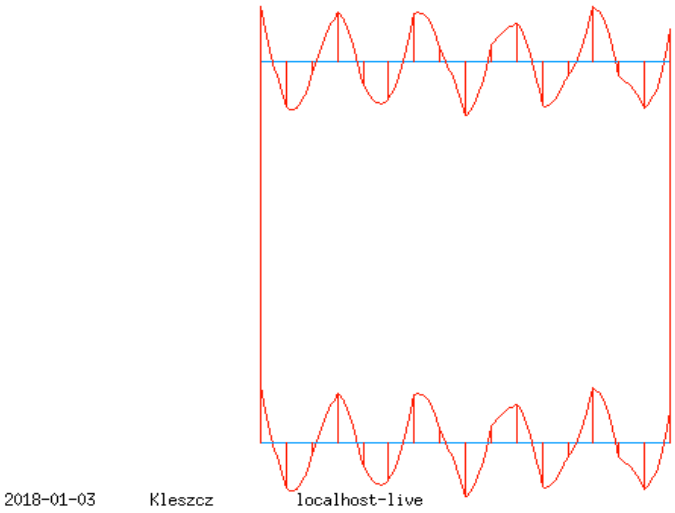


Rzeczywisty prąd elektryczny Jx

Omega = 20

Set incydent angle: 360

Comp=-2



Urojony prąd elektryczny Jy

NS – Przepływy nieściśliwe równanie Naviera-Stokes

EM - Równania Maxwella – harmoniczne w czasie

$$\begin{cases} XE = -i\omega\upsilon H \rightarrow H = \dfrac{-1}{i\omega\upsilon} * E \\ XH = i\omega\varepsilon H + \sigma E + J \end{cases}$$

LE- Liniowa Sprężystość

$$\begin{cases} \dfrac{-\sigma ij}{xi} = fi \\ \epsilon_{ij} = \dfrac{1}{2}\left(\dfrac{ui}{xj} + \dfrac{ui}{xj}\right) \\ \sigma ij = 2u\,\epsilon_{ij} + \lambda\,\epsilon_{kk} + \delta_{ij} \\ \upsilon = \upsilon \\ \delta_{ij} = t_i \end{cases}$$