

# Poisson astral

This version: June 10, 2002 (incomplete and unfinished)

Solution de  $\nabla^2\Phi = F(\Phi, h)$  par corrections  $\Phi \rightarrow \Phi + \psi$ , avec  $\nabla^2\psi = A\psi = F - \nabla^2\Phi$ , où  $A = \partial F/\partial\Phi$ . Ici,  $A > 0$  (sauf peut-être dans la couche singulière)

1 session started Mon Jun 10 15:03:14 2002

C:\dos\djgpp>poissona

test erfc(1/2): 0.479500122 err= -7.26919835E-09

test 1/2-K2 (0): 0.5

test 1/2-K2 (1): 0.286203352

test 1/2-K2 (10): 2.10927055E-43 2.10932219E-43

test 1/2-K2 (15): 1.63012083E-97 1.63012876E-97

name of data file ?

poissona.d2

contents of poissona.d2 Phi1= 25.

	hb	Z	mass(p)	dens.(m -3)	temp.(K)	c	psi	xi	ze
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1	1.4000E+06	ec	-1	5.4466E-04	2.6879E+10	3.5000E+03	1	1	1	0
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2	1.4000E+06	O+	1	1.6000E+01	2.6000E+10	1.5000E+03	0	1	1	1
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3	1.4000E+06	H+	1	1.0000E+00	8.8000E+08	3.0000E+03	1	1	1	0
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4	1.4000E+06	ew	-1	5.4466E-04	6.0000E+06	1.0000E+06	1	0	0	1
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5	1.4000E+06	p	1	1.0000E+00	4.8000E+06	7.0000E+06	1	0	0	1
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test sum Zi ni = 0.

...

charge en 21.036338V , hcrit= 23969600. : -8.88062094E-08

...

fichier postscript? l=oui 0

calcul charge, read h, Phi stop si h<0 -1 1

calcul de Phi neutre en d'autres h: read h stop si<0 -1

Poisson: h0,hN,Npo? (stop si <=0)

2.395e7 2.3975e7 55

h0= 23950000. hN= 23975000. Phi0= 21.1560628PhiN= 11.0287867

test Laplace: 4.70501412E-11

how many further iterations? 0=stop, relax<=1 10 0.01

1 Laplace: 0.00362836802 err: 0.00362836802

2 Laplace: 0.00355569459 err: 0.00355569459

3 Laplace: 0.00351664773 err: 0.00351664773

...

100 Laplace: 0.00132337422 err: 0.00132337422

...

200 Laplace: 0.000486994511 err: 0.000486994511

...

400 Laplace: 6.60364458E-05 err: 6.60364749E-05

how many further iterations? 0=stop, relax<=1 10 0.1

...

424 Laplace: 6.3505795E-06 err: 6.35060269E-06

425 Laplace: 5.97841472E-06 err: 5.7399152E-06

426 Laplace: 5.98555471E-06 err: 5.1879897E-06

427 Laplace: 5.99215764E-06 err: 4.68916596E-06

428 Laplace: 5.99826626E-06 err: 4.23832762E-06

429 Laplace: 6.00391422E-06 err: 3.83085398E-06

430 Laplace: 6.00913654E-06 err: 3.4625707E-06

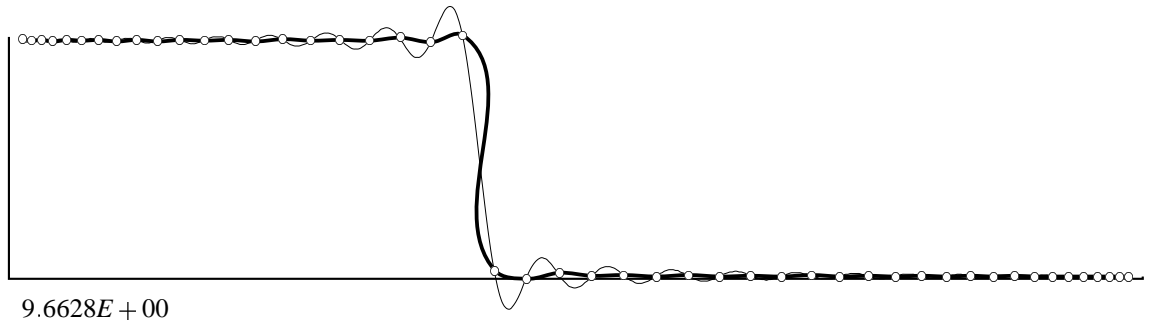
...

550 Laplace: 6.0719758E-06 err: 3.61838959E-09

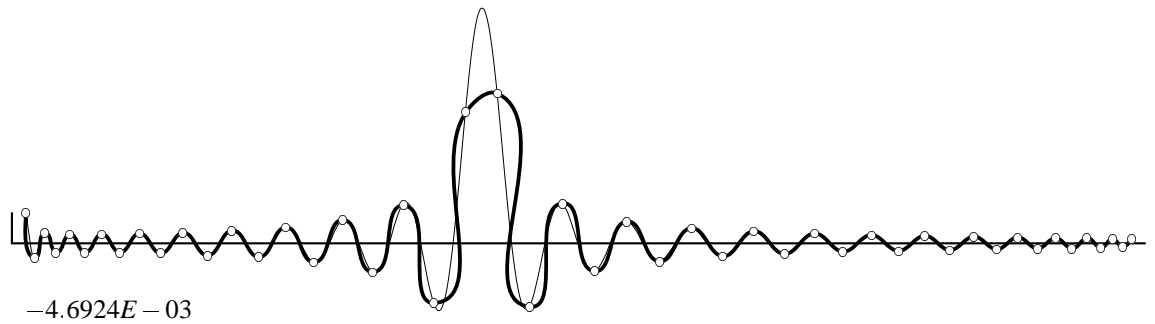
how many further iterations? 0=stop, relax<=1 0 0

points du graphe? entre 10 et 500                      500  
min Phi = 9.66282368 max= 22.3161736  
min -dPhi/dh = -0.00469242176 max= 0.016361611  
min Laplacien Phi = -3.52229399E-05 max= 3.45388471E-05

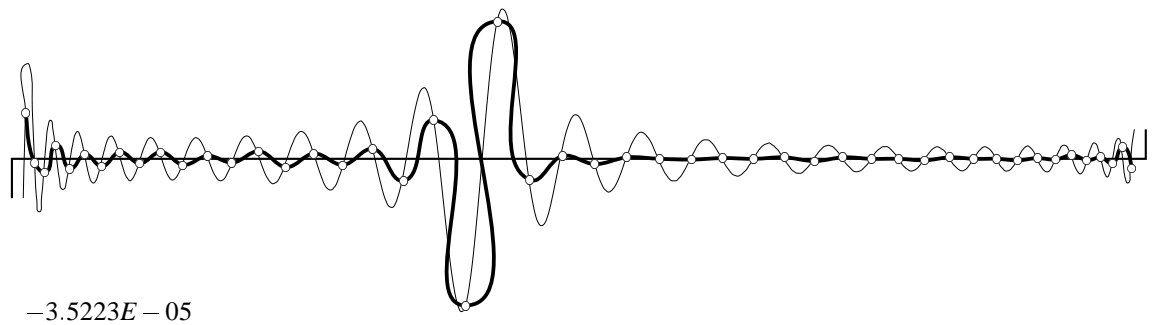
$2.2316E+01$



$1.6362E-02$



$3.4539E-05$



C:\dos\djgpp>exit                      Script completed Mon Jun 10 15:09:35 2002