Table of Contents

Reader cylindrical coordinate 2D, Imaginary time propagation 1
Grid parameters 1
Movie Convergence bound state 1
Convergence error 7

Reader cylindrical coordinate 2D, Imaginary time propagation

```
clear all

A0 = importdata('out0.txt');
A1 = importdata('out1.txt');
%A2 = importdata('out2.txt');
A3 = importdata('out3.txt');
A4 = importdata('out4.txt');
A5 = importdata('out5.txt');
```

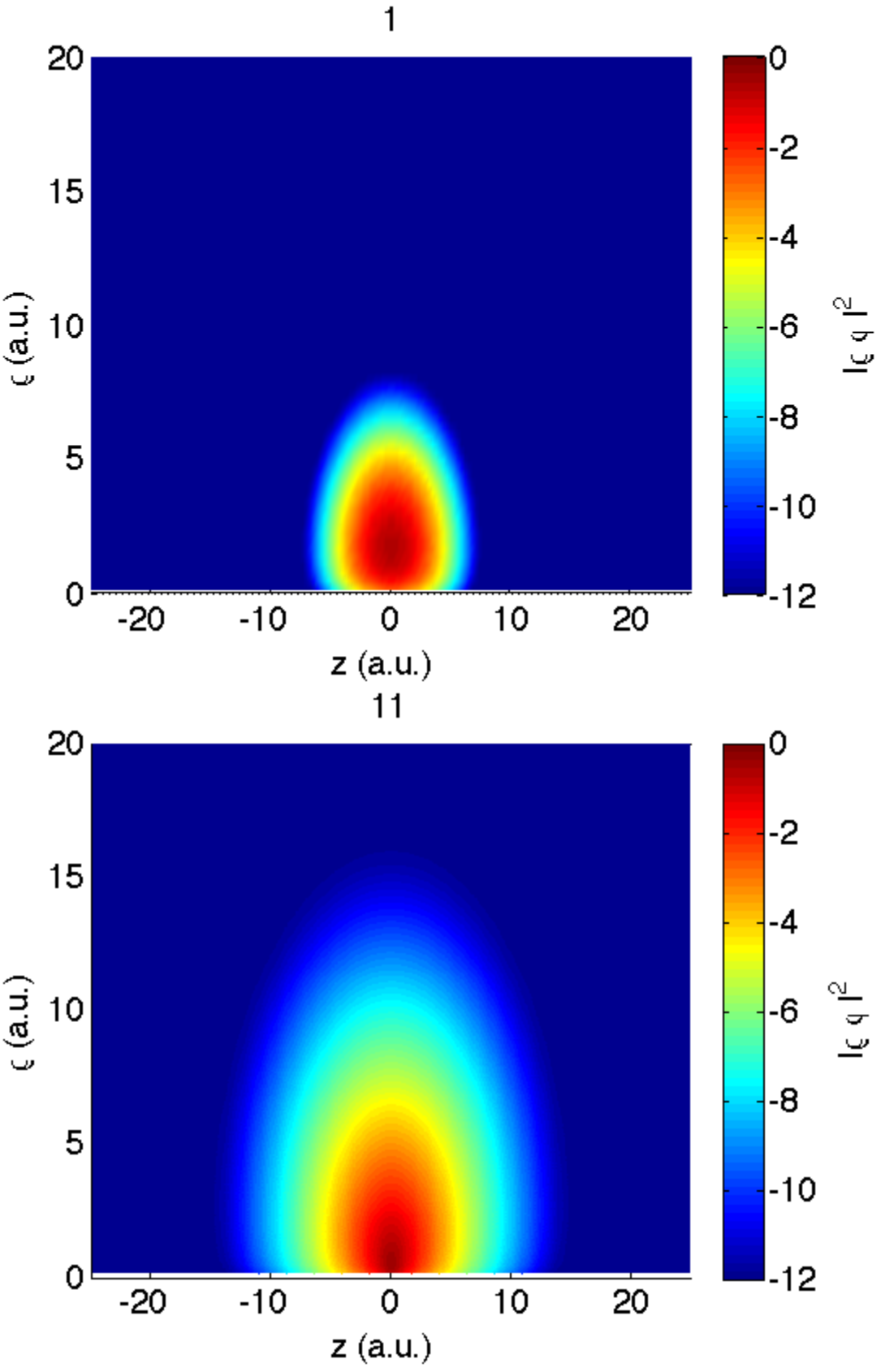
Grid parameters

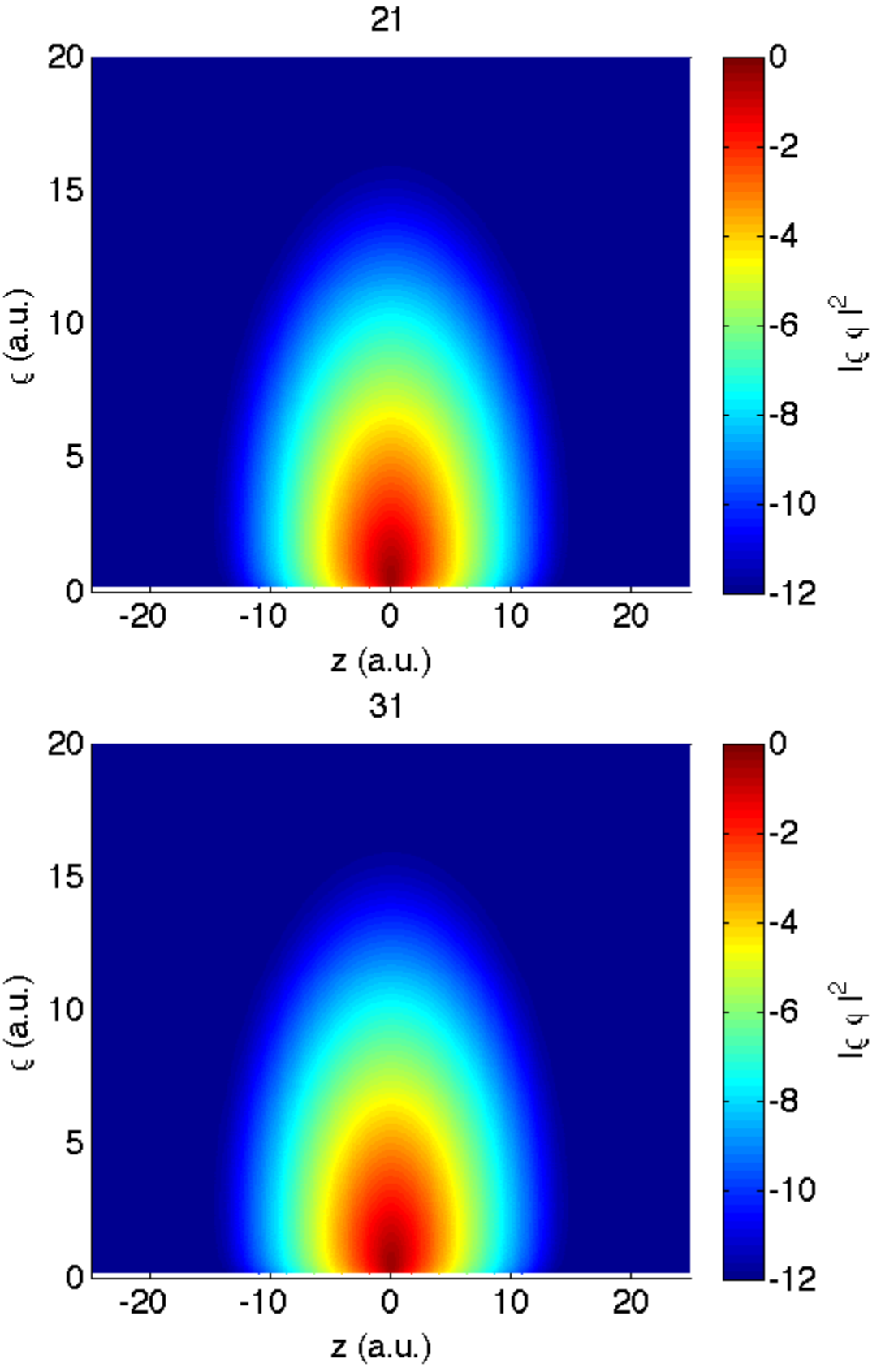
```
nr = 250; %A3(1);
nz = 400; %A3(2);


snap  = length(A3)/nr/nz;%1;%
Nsnap = snap-1;%floor(Ntime/snap);

r = A0(1:nr);
z = A0(nr+1:nz+nr);

[Z R] = meshgrid(z,r);

dt = 0.05;

t     = A5(:,1);
Exuv  = A5(:,2);
ksnap = floor(length(t)/snap);
```

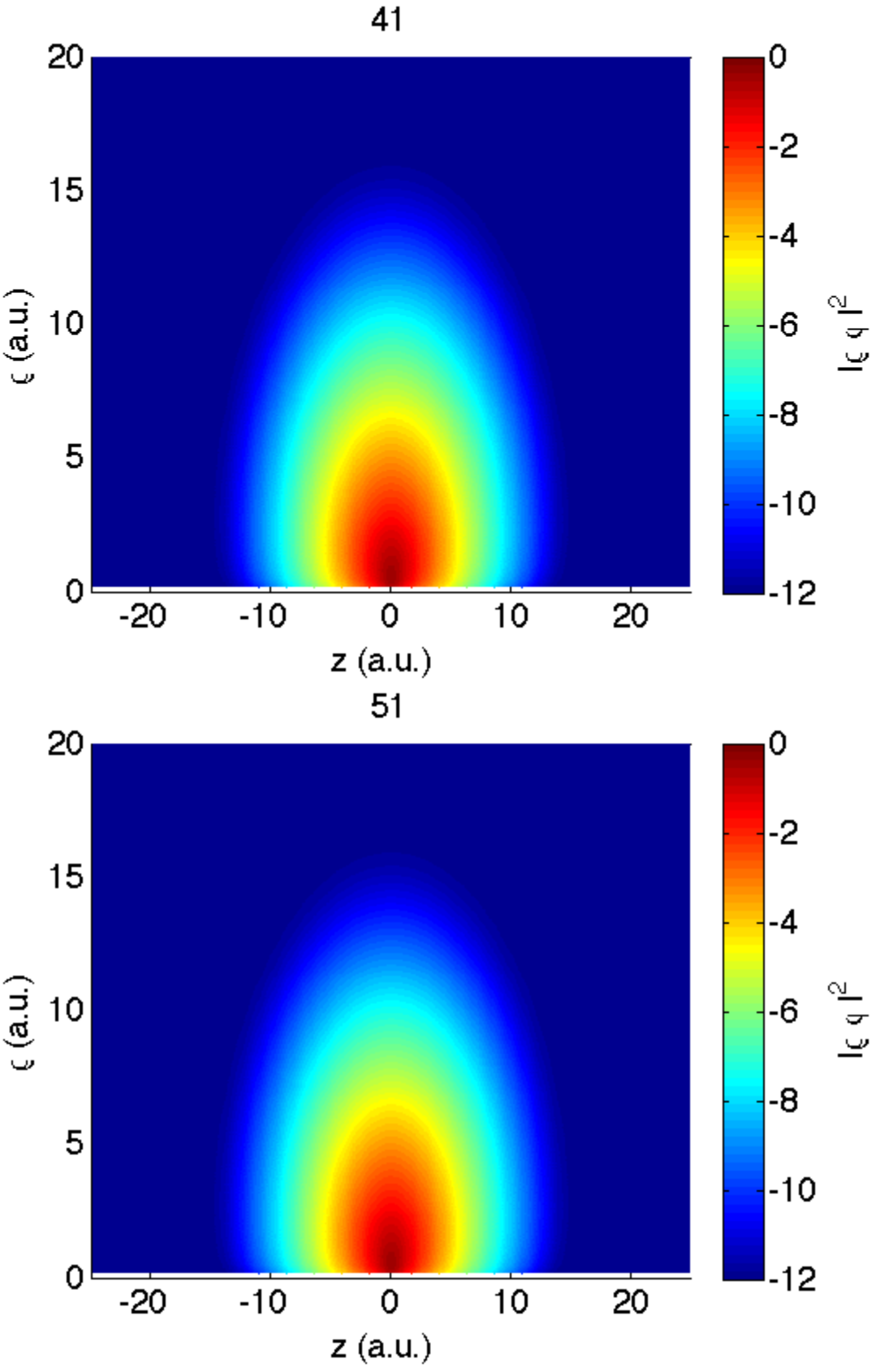
Movie Convergence bound state

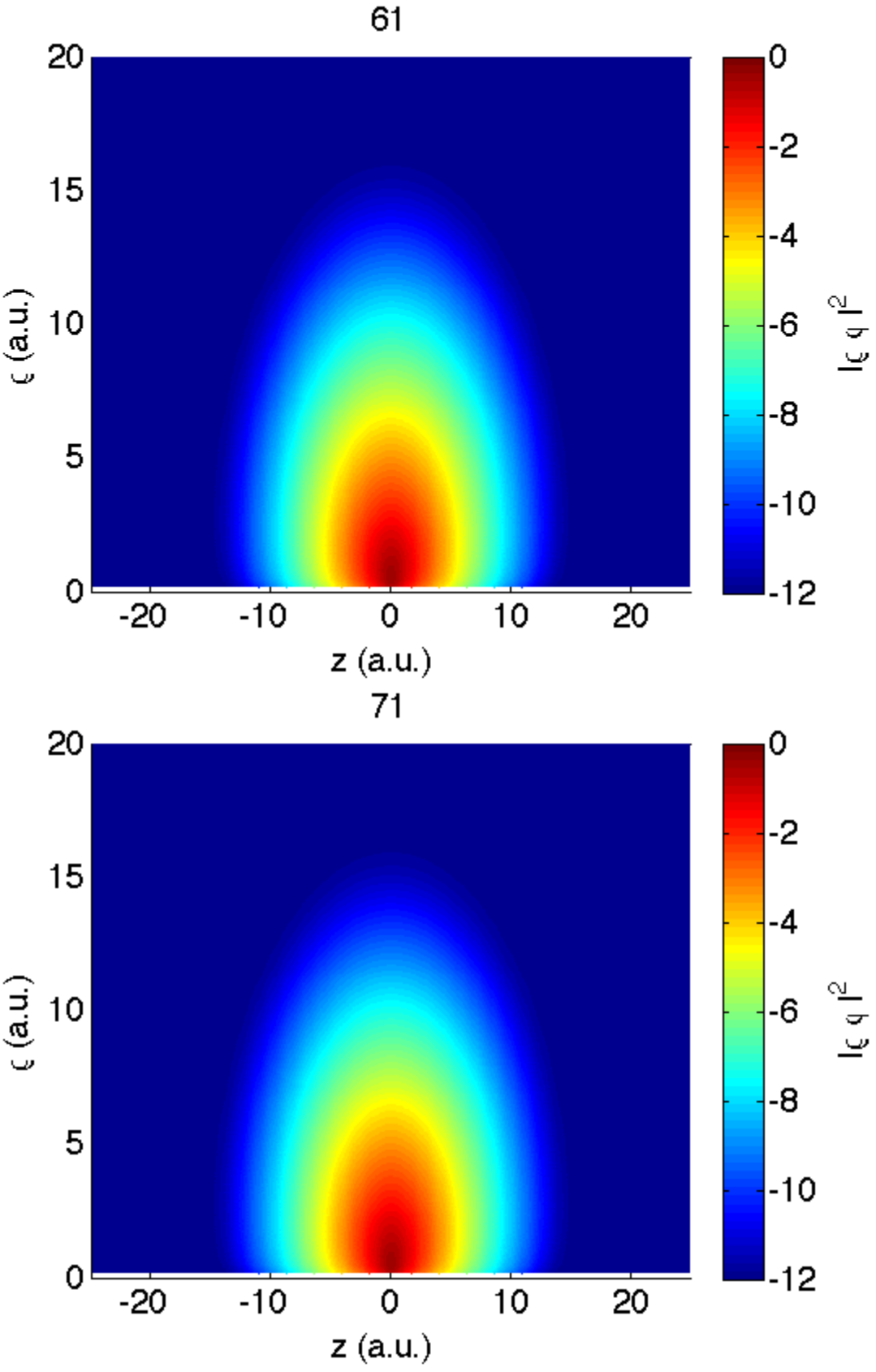
```
xmin = -25.;
xmax =  25.;
ymin =  0. ;
ymax =  20.;


for j=1:10:Nsnap

    %scrsz = get(0,'ScreenSize');
    %figure('Position',[1 scrsz(4) scrsz(3)*0.5 scrsz(4)*0.8],...
```

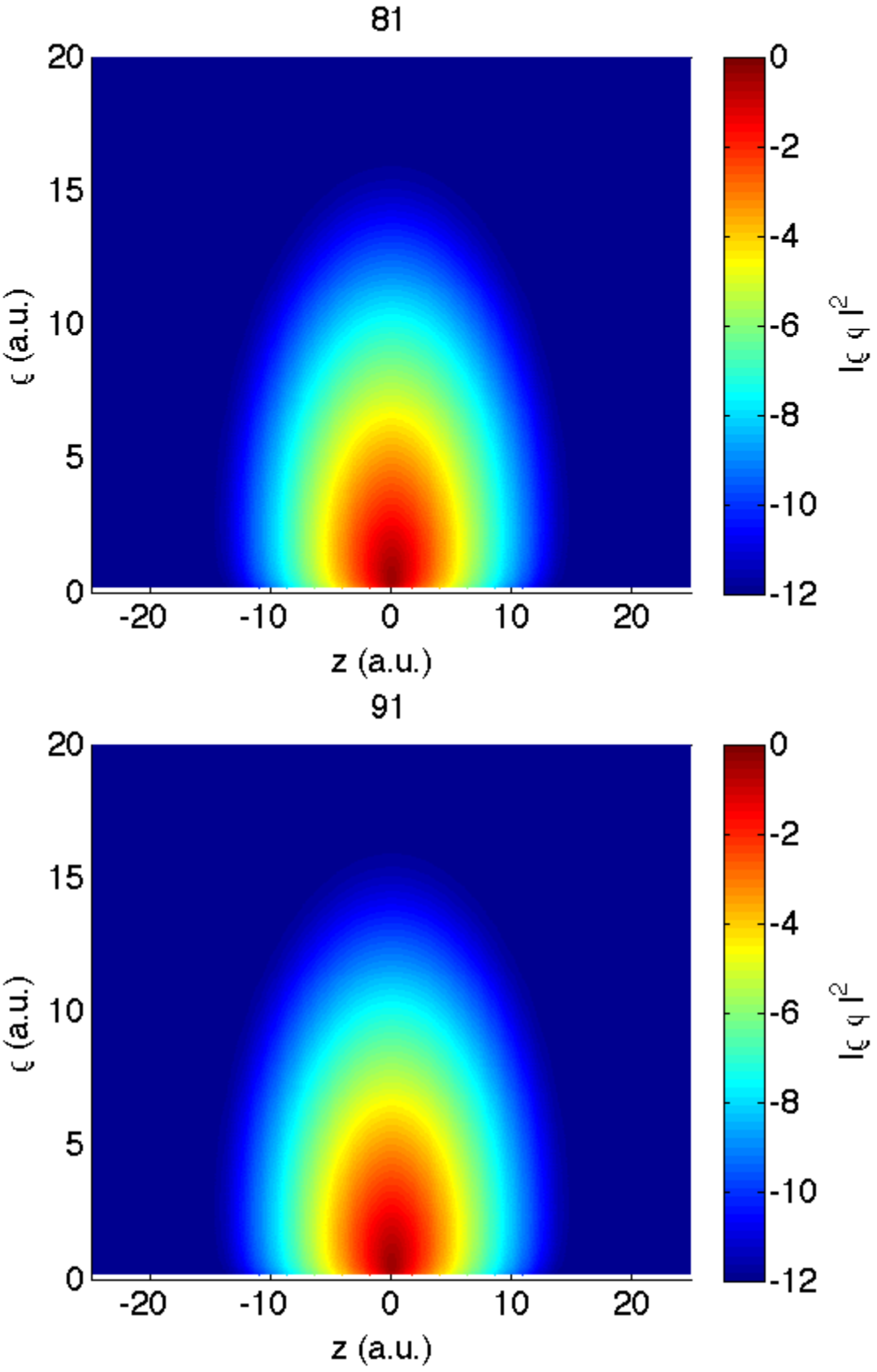
```
    %    'Color','w');
    figure

    PHI  = reshape(A3(1+nr*nz*(j-1):nr*nz*j),nz,nr);


    surfc(Z,R,log10(PHI'+1e-12),...
        'FaceColor','interp',...
        'EdgeColor','none')

    view(2)
    axis tight

    h=gca;
    set(h,'fontsize',16)

    xlabel('z (a.u.) ','fontsize',16)%,'fontweight','b')
    ylabel('\rho (a.u.) ','fontsize',16)%,'fontweight','b')



    title(j)
    h = colorbar('location','EastOutside');
    set(get(h,'YLabel'),'String',' |\rho \phi |^2  ',...
        'fontsize',16)%,'fontweight','b');

    caxis([-12 0])

    xlim([xmin xmax])
    ylim([ymin ymax])

    h=gca;
    set(h,'fontsize',16)



    pause(0.01)

end
```


1
20
15
10
5
0
ϵ (a.u.)
-20
-10
0
10
20
z (a.u.)
0
-2
-4
-6
-8
-10
-12
|ϵ q|2
11
20
15
10
5
0
ϵ (a.u.)
-20
-10
0
10
20
z (a.u.)
0
-2
-4
-6
-8
-10
-12
|ϵ q|2


21
20
15
10
5
0
ϵ (a.u.)
-20
-10
0
10
20
z (a.u.)
0
-2
-4
-6
-8
-10
-12
|ε q|²
31
20
15
10
5
0
ϵ (a.u.)
-20
-10
0
10
20
z (a.u.)
0
-2
-4
-6
-8
-10
-12
|ε q|²

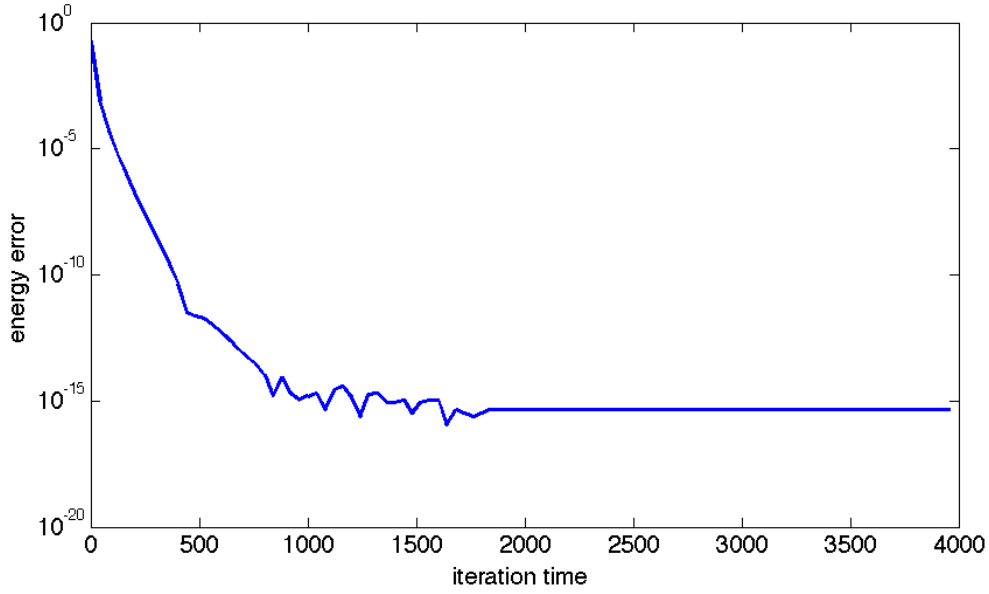

41
20
15
10
5
0
ϵ (a.u.)
-20
-10
0
10
20
z (a.u.)
0
-2
-4
-6
-8
-10
-12
$|\epsilon_q|^2$
51
20
15
10
5
0
ϵ (a.u.)
-20
-10
0
10
20
z (a.u.)
0
-2
-4
-6
-8
-10
-12
$|\epsilon_q|^2$


61
20
15
10
5
0
ϵ (a.u.)
-20
-10
0
10
20
z (a.u.)
0
-2
-4
-6
-8
-10
-12
|ε q|²
71
20
15
10
5
0
ϵ (a.u.)
-20
-10
0
10
20
z (a.u.)
0
-2
-4
-6
-8
-10
-12
|ε q|²


81
20
15
10
5
0
ϵ (a.u.)
-20
-10
0
10
20
z (a.u.)
0
-2
-4
-6
-8
-10
-12
$|\epsilon_q|^2$
91
20
15
10
5
0
ϵ (a.u.)
-20
-10
0
10
20
z (a.u.)
0
-2
-4
-6
-8
-10
-12
$|\epsilon_q|^2$

Convergence error

```
scrsz = get(0,'ScreenSize');
figure('Position',[1 scrsz(4) scrsz(3)*0.5 scrsz(4)*0.5],...
        'Color','w');

semilogy((1:40:4000),A4(:,2),'linewidth',3)
xlabel('iteration time ','fontsize',16)%,'fontweight','b')
ylabel(' energy error  ','fontsize',16)

set(gca,'fontsize',16)
```



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