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Build far field covariance matrix

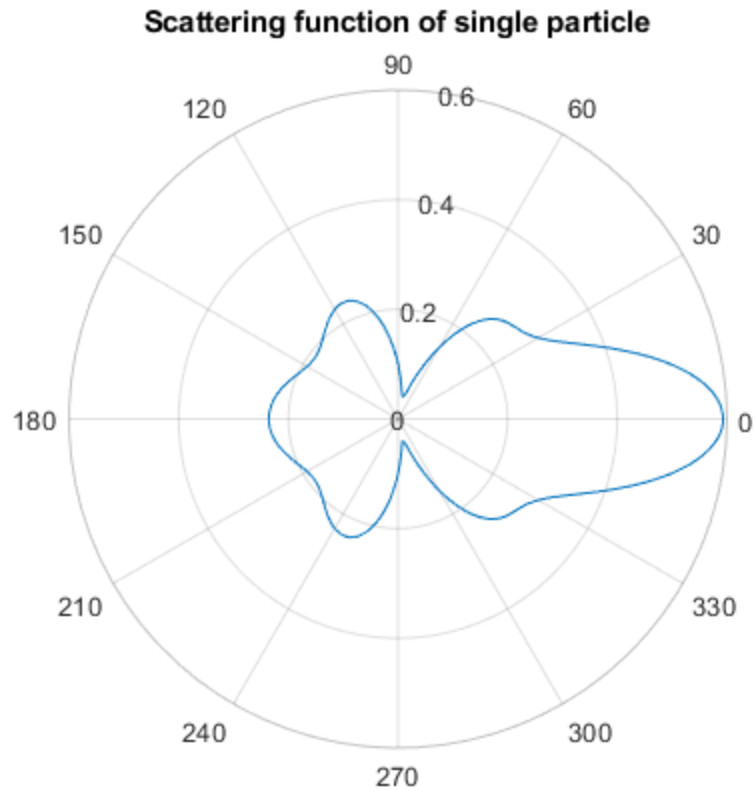
```
% Build the target area
boxTargetArea = boxArea( ...
    1,          ... wavelength
    10,         ... MFP (O.D. = 2)
    [-10,10],   ... z
    [-10,10]    ... x
);

% views config, define by angles
viewsDirections = 0:1:359;
views = farFieldSource(deg2rad(viewsDirections),0);

% lights config, lighting in some directions
lightsDirections = [0, 1, 4, 20];
lights = farFieldSource(deg2rad(lightsDirections),0);

% scatter config
% load measured amplitude (generated by mu-diff far field)
load('scatteringAmplitude.mat', 'theta', 'farField')
scatter = tabulatedAmplitudeScatter( ...
    theta,      ... diirections
    farField    ... measured amplitude
);

% Show the scatteringfunction
figure
polarplot(theta, abs(farField).^2);
title('Scattering function of single particle')
```



Solve scmc with CBS

```
tic
CBSres =
    scmc(boxTargetArea,views,lights,scatter,1e3,'CBS',true,'parforIters',12);
toc
```

Elapsed time is 618.607158 seconds.

Solve scmc without CBS

```
tic
NCBSres =
    scmc(boxTargetArea,views,lights,scatter,1e3,'CBS',false,'parforIters',12);
toc
```

Elapsed time is 413.116511 seconds.

Compare cov matrix

```
f = figure;
f.Position = [0,0,1200,700];
maxval = max(abs([CBSres.C(:);NCBSres.C(:)]));

subplot(2,4,1);
```

```

imagesc(viewsDirections,viewsDirections,abs(CBSres.C(:, :, 1, 1)),
[0,maxval]);
xlabel('view[deg]');
ylabel({'CBS', 'view[deg]'});
title(['(', num2str(lightsDirections(1)), '\circ, ', num2str(lightsDirections(1)), '\ci

subplot(2,4,2);
imagesc(viewsDirections,viewsDirections,abs(CBSres.C(:, :, 1, 2)),
[0,maxval]);
xlabel('view[deg]');
ylabel('view[deg]');
title(['(', num2str(lightsDirections(1)), '\circ, ', num2str(lightsDirections(2)), '\ci

subplot(2,4,3);
imagesc(viewsDirections,viewsDirections,abs(CBSres.C(:, :, 1, 3)),
[0,maxval]);
xlabel('view[deg]');
ylabel('view[deg]');
title(['(', num2str(lightsDirections(1)), '\circ, ', num2str(lightsDirections(3)), '\ci

subplot(2,4,4);
imagesc(viewsDirections,viewsDirections,abs(CBSres.C(:, :, 1, 4)),
[0,maxval]);
xlabel('view[deg]');
ylabel('view[deg]');
title(['(', num2str(lightsDirections(1)), '\circ, ', num2str(lightsDirections(4)), '\ci

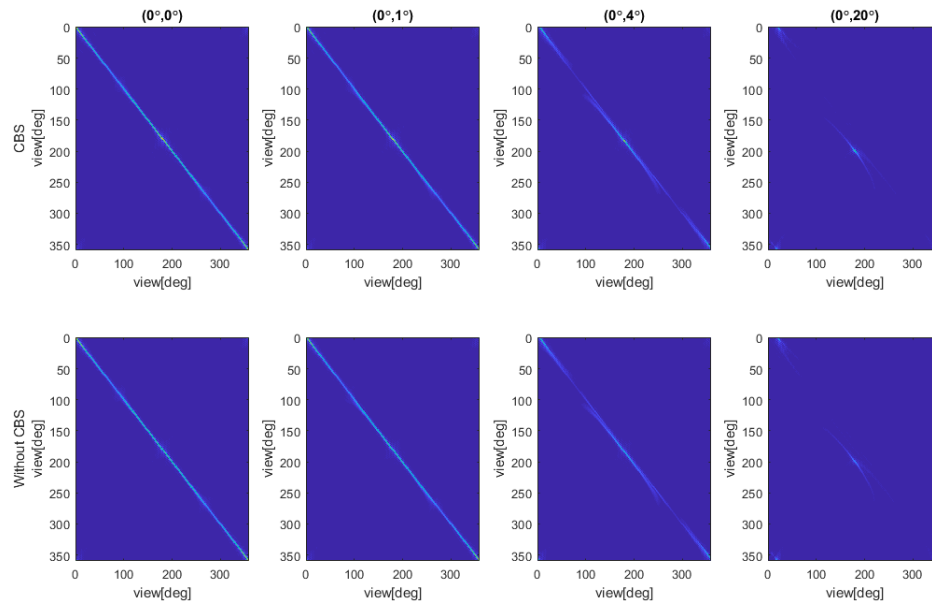
subplot(2,4,5);
imagesc(viewsDirections,viewsDirections,abs(NCBSres.C(:, :, 1, 1)),
[0,maxval]);
xlabel('view[deg]');
ylabel({'Without CBS', 'view[deg]'});

subplot(2,4,6);
imagesc(viewsDirections,viewsDirections,abs(NCBSres.C(:, :, 1, 2)),
[0,maxval]);
xlabel('view[deg]');
ylabel('view[deg]');

subplot(2,4,7);
imagesc(viewsDirections,viewsDirections,abs(NCBSres.C(:, :, 1, 3)),
[0,maxval]);
xlabel('view[deg]');
ylabel('view[deg]');

subplot(2,4,8);
imagesc(viewsDirections,viewsDirections,abs(NCBSres.C(:, :, 1, 4)),
[0,maxval]);
xlabel('view[deg]');
ylabel('view[deg]');

```



Compare diagonals

figure

hold on

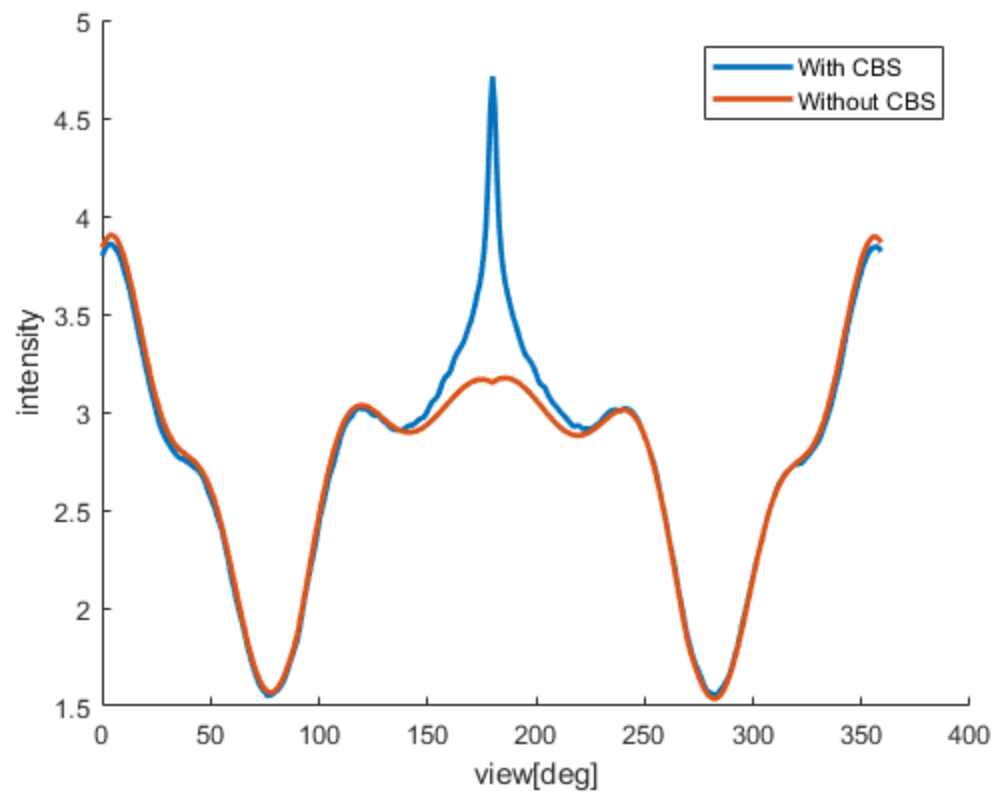
```
plot(viewsDirections,diag(abs(CBSres.C(:, :, 1, 1))), 'lineWidth', 2);
```

```
plot(viewsDirections,diag(abs(NCBSres.C(:, :, 1, 1))), 'lineWidth', 2);
```

```
xlabel('view[deg]');
```

```
ylabel('intensity');
```

```
legend('With CBS', 'Without CBS')
```



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