Test harness for CRCBPSO using ackley function

The fitness function called is crcbpsoackleyfunc.

```
ffparams = struct('rmin',-100,...
                    'rmax',100 ...
                  );
% Fitness function handle.
addpath ../../SDMBIGDAT19/CODES/

fitFuncHandle = @(x) crcbpsoackleyfunc(x,ffparams);
```

Call PSO.

```
rng('default')
psoOut = crcbpso(fitFuncHandle,2);
```

Estimated parameters

Best standardized and real coordinates found.

```
stdCoord = psoOut.bestLocation;
[~,realCoord] = fitFuncHandle(stdCoord);
disp(['Best location:',num2str(realCoord)]);
```

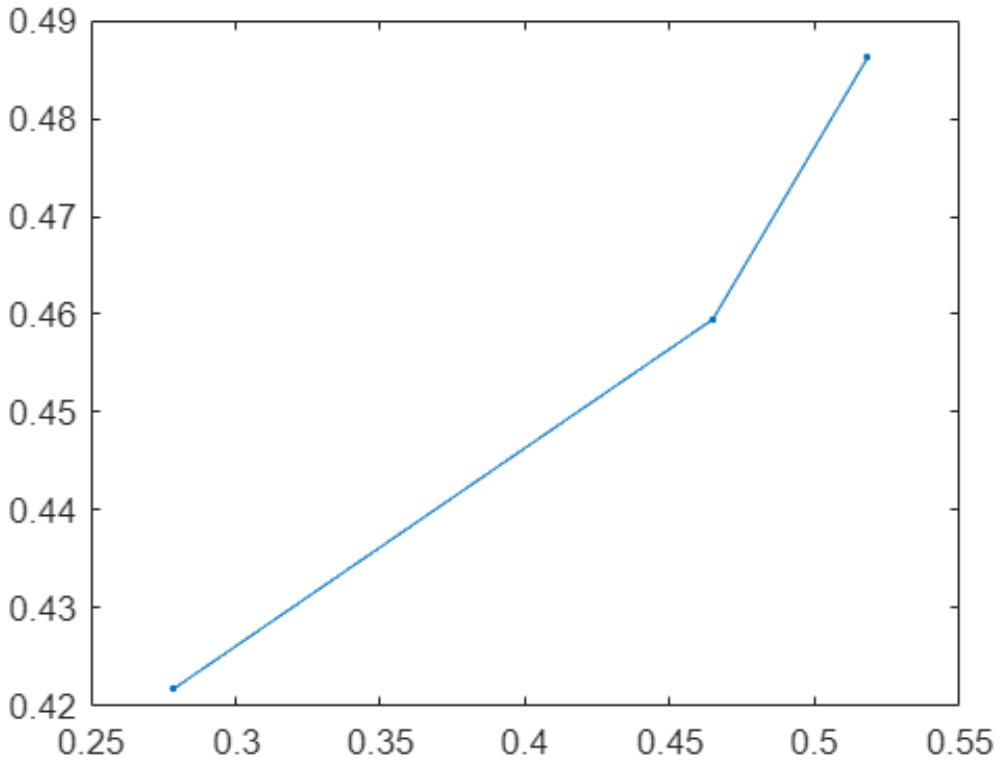
```
Best location:0  0
```

```
disp(['Best fitness:', num2str(psoOut.bestFitness)]);
```

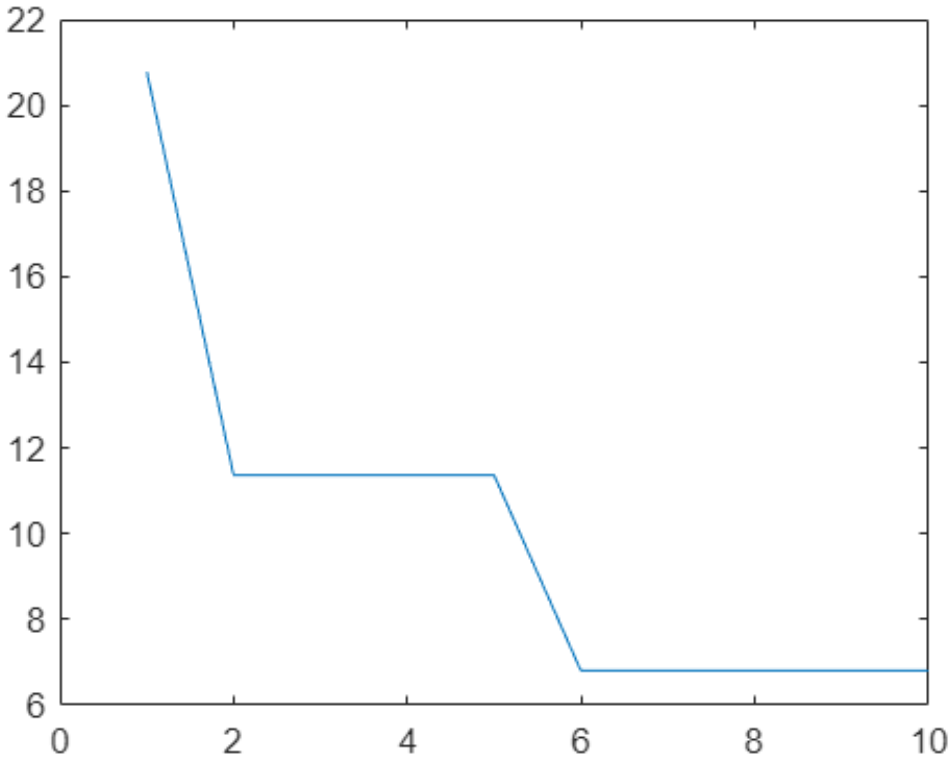
```
Best fitness:1.667
```

Call PSO with optional inputs

```
psoparams = struct('popSize',10,...
                    'maxSteps',10, ...
                      'boundaryCond', '', ...
                        'nbrhdSz',3 ...
                  );
rng('default')
psoOut = crcbpso(fitFuncHandle,2,psoparams,2);
%Plot the trajectory of the best particle
figure;
plot(psoOut.allBestLoc(:,1),psoOut.allBestLoc(:,2),'.-');
```

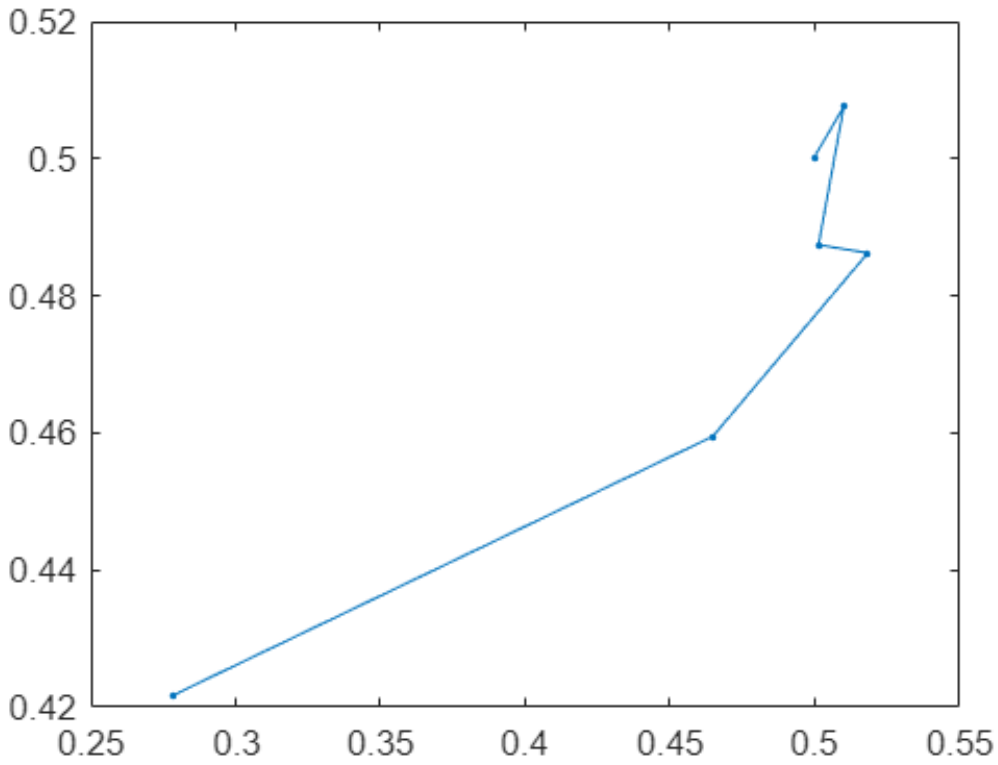



```
figure;
plot(psoOut.allBestFit);
```

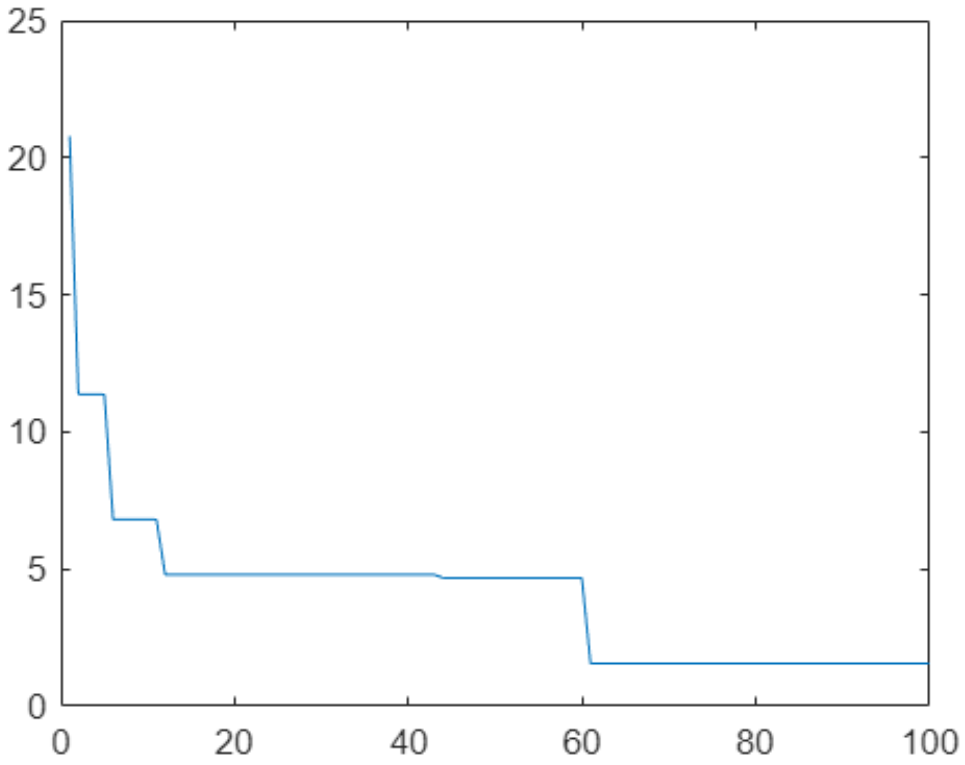


I also tried this with 100 max steps, each one showing a higher number of steps needed before finding the best fit location.

```
psoparams = struct('popSize',10,...
                   'maxSteps',100,...
                    'boundaryCond', '', ...
                     'nbrhdSz',3 ...
                );
rng('default')
psoOut = crcbpso(fitFuncHandle,2,psoparams,2);
%Plot the trajectory of the best particle
figure;
plot(psoOut.allBestLoc(:,1),psoOut.allBestLoc(:,2),'.-');
```

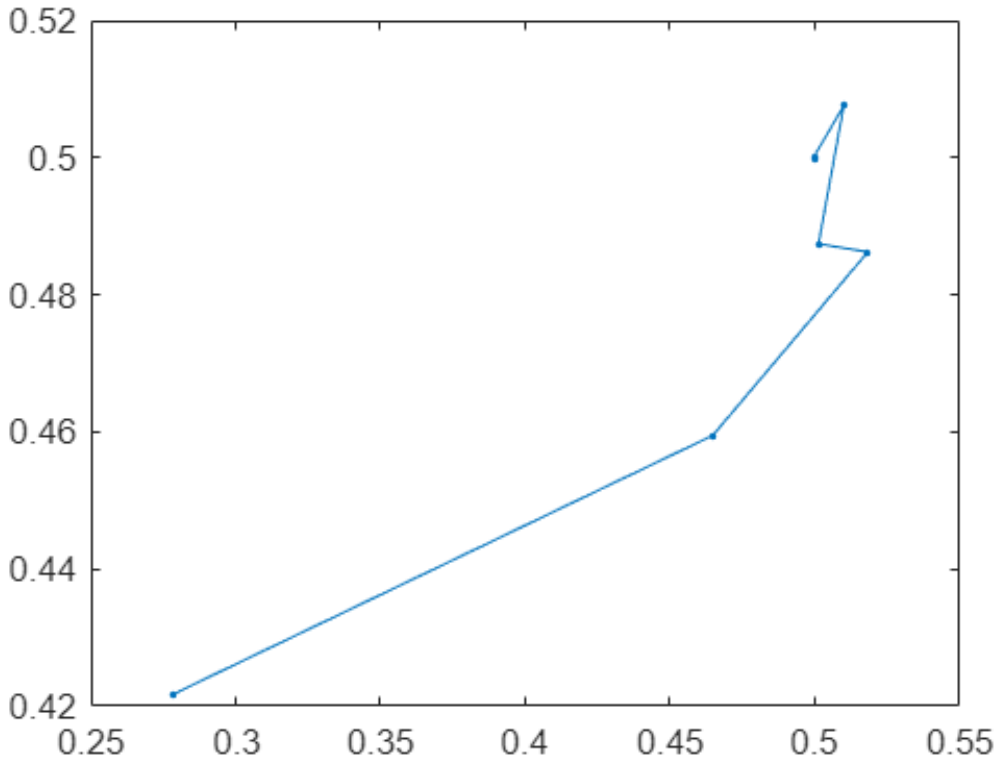



```
figure;
plot(psoOut.allBestFit);
```



And again, with 1000 max steps.

```
psoparams = struct('popSize',10,...
                     'maxSteps',1000, ...
                       'boundaryCond', '', ...
                         'nbrhdSz',3 ...
                  );
rng('default')
psoOut = crcbpso(fitFuncHandle,2,psoparams,2);
%Plot the trajectory of the best particle
figure;
plot(psoOut.allBestLoc(:,1),psoOut.allBestLoc(:,2),'.-');
```




```
figure;
plot(psoOut.allBestFit);
```