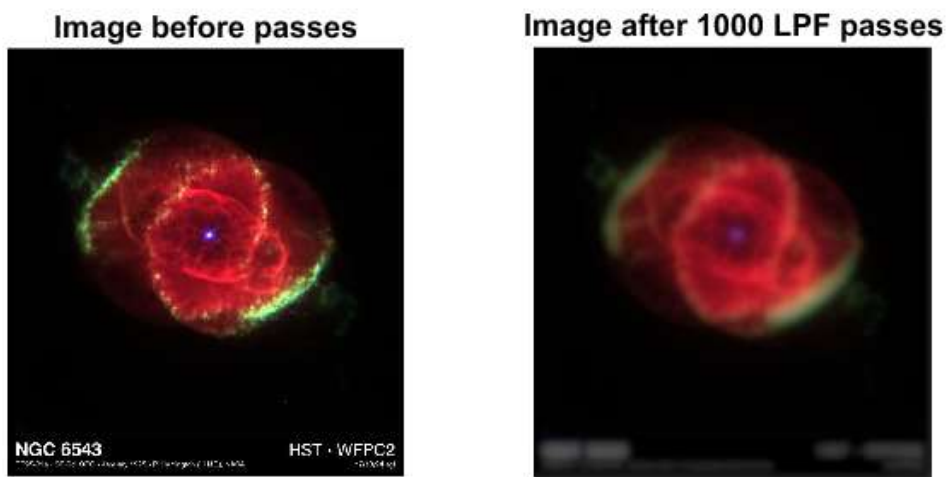# Homework 2, Problem 8

```
clear all;
close all;
clc;
```

If we keep running a low pass filter over the image eventually the effect of the low pass filter is minimal because all that remains are low freqencies. This is the limiting effect.

```
img = imread('ngc6543a.jpg');

lpf = fspecial('gaussian',3,1.7);

lpf_img = imfilter(img, lpf, 'replicate');

for i=1:1000
    lpf_img = imfilter(lpf_img, lpf, 'replicate');
end

figure;
subplot(1,2,1)
imshow(img);
title('Image before passes');

subplot(1,2,2);
imshow(lpf_img);
title('Image after 1000 LPF passes');
```

Image before passes   Image after 1000 LPF passes

This looks similar to after just 100 passes.

```matlab
lpf_img = imfilter(img, lpf, 'replicate');

for i=1:100
    lpf_img = imfilter(lpf_img, lpf, 'replicate');
end

figure;
subplot(1,2,1)
imshow(img);
title('Image before passes');

subplot(1,2,2);
imshow(lpf_img);
title('Image after 100 LPF passes');
```
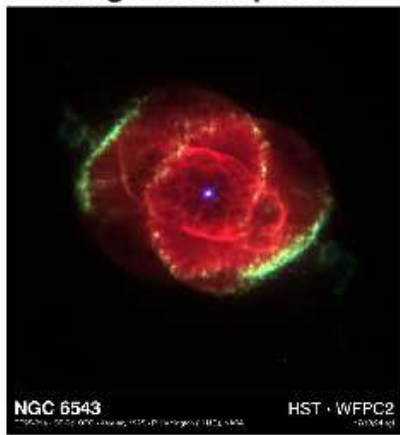
Image before passes

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Image after 100 LPF passes