Experiments on LFW-Aligned

Cropping Offsets (displacement of cropping window from its center position): (X x Y)= (+1 x -4)

Mean Image

In [6]:
```
#Mean image aligned version of LFW:
amim=imread('/scratch/testing/experiments/meanim.png')
imshow(amim),gray(),
title('Aligned LFW (LFWa)')
axis('off');
```

Feature Normalization= $\sqrt{L1}$

LBP Features

In [35]:
```
# Without PCA and Chi-Square Simpilarlity on View2
sdir='/scratch/fr/lfw/new-data-xoffset=1-yoffset=-4/lbp-norm-1-/'
v2s=np.load(sdir+'data/view2-LBP-chi-square-simple-threshold-model-results.npy')
print v2s
print 'Average Accuracy of Simple Model (Without PCA, Chi-Square Distance) on View2 = %0.2f'%(np.mean(v2s)*100)
```

```
[ 0.73333333  0.71        0.71166667  0.695       0.685       0.73833333
  0.72        0.68833333  0.65666667  0.70833333]
Average Accuracy of Simple Model (Without PCA, Chi-Square Distance) on View2 = 70.47
```

In [36]:
```
# With PCA (components = 500) and cosine Simpilarlity on View1
sdir='/scratch/fr/lfw/new-data-xoffset=1-yoffset=-4/lbp-norm-1-/'
v2pca=np.load(sdir+'data/view1-LBP-PCA-500-cosine-results.npy')
print 'Accuracy of Model (With PCA, Cosine Similarity) on View1 = %0.2f'%((v2pca[-1,1])*100)
```

```
Accuracy of Model (With PCA, Cosine Similarity) on View1 = 83.30
```

In [37]:
```
# With PCA (components = 500) and cosine Simpilarlity on View2
sdir='/scratch/fr/lfw/new-data-xoffset=1-yoffset=-4/lbp-norm-1-/'
v2pca=np.load(sdir+'data/view2-LBP-PCA-500-cosine-results.npy')
print v2pca
print 'Average Accuracy of Model (With PCA, Cosine Similarity) on View2 = %0.2f'%(np.mean(v2pca[:,1])*100)
```

```
[[ 500.            0.83666667]
 [ 500.            0.82333333]
 [ 500.            0.805     ]
 [ 500.            0.81666667]
 [ 500.            0.82166667]
 [ 500.            0.84833333]
 [ 500.            0.84833333]
 [ 500.            0.82      ]
 [ 500.            0.82166667]
 [ 500.            0.82833333]]
Average Accuracy of Model (With PCA, Cosine Similarity) on View2 = 82.70
```

LQP Features

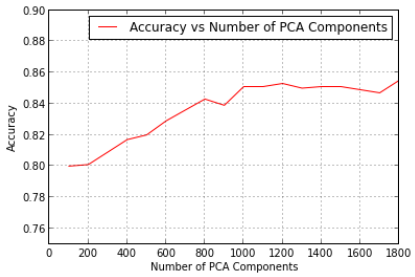
Geometry = $Disc_7^{3*}$

Number of Visual Words=150 per codebook

$$\tau = 5$$

Cross-Validating on View1:

In [7]:
```
# With PCA (components = 2000) and cosine Simpilarlity on View1 (Cross-Validation for number of PCA components)
sdir='/scratch/fr/lfw/new-data-xoffset=1-yoffset=-4/trained_on_view1/lqp-size=7-codebooksize=150-tolerance=5/'
v2pca=np.load(sdir+'/data/view1-LQP-PCA-2000-cosine-results.npy')
np.set_printoptions(suppress=True)
plot(v2pca[:-2,0],v2pca[:-2,1],'-r',label='Accuracy vs Number of PCA Components')
ylim(0.75,0.9)
xlabel('Number of PCA Components')
ylabel('Accuracy')
legend(loc=0)
grid()
```



Testing on View2

In [43]:
```
# Experimeint 1: With PCA (components = 1800) and cosine Simpilarlity on View2
sdir='/scratch/fr/lfw/new-data-xoffset=1-yoffset=-4/trained_on_view1/lqp-size=7-codebooksize=150-tolerance=5/'
v2pca=np.load(sdir+'/data/view2-LQP-PCA-1800-cosine-results.npy')
print v2pca
print 'Average Accuracy of Model (With PCA Components=1800, Cosine Similarity) on View2 = %0.2f(%f)'%(np.mean(v2pca[:,1])*100,np.std(v2pca[:,1]))
```

```
[[ 1800.          0.87333333]
 [ 1800.          0.84      ]
 [ 1800.          0.83833333]
 [ 1800.          0.845     ]
 [ 1800.          0.84833333]
 [ 1800.          0.88333333]
 [ 1800.          0.86666667]
 [ 1800.          0.85666667]
 [ 1800.          0.84666667]
 [ 1800.          0.87666667]]
Average Accuracy of Model (With PCA Components=1800, Cosine Similarity) on View2 = 85.75(0.015496)
```