```
% The eigenbasis
[eigenval,eigenfun,~,NN] = domain_cartesian_dx(m,d,LL);
```

```
% The eigenvalues
lambda = eigenval(NN);
```

```
% Solve GP with optimized hyperparameters and
% return predictive mean and variance
k = S(sqrt(lambda),lengthScale,magnSigma2);
foo = diag(sqrt(k))*randn(numel(k),1);
```

```
f = Phi*foo;
```

```
% Evaluate Phi for the observations
Phi    = eigenfun(NN,x);
```

```
% The spectral density of the squared exponential covariance function
S = @(w,lengthScale,magnSigma2) ...
        magnSigma2*sqrt(2*pi)^d*lengthScale^d*exp(-w.^2*lengthScale^2/2);
```

特征值

$$\sigma^2 \sqrt{2\pi}^d l^d e^{\left(-\frac{w^2 \cdot l^2}{2}\right)}$$