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% The infinite dimensional state space for the harmonic oscillator will be
% represented in the photon number basis.
% We will truncate the Hilbert space at maxPhotonNumber photons.
maxPhotonNumber = 10;

% First, pre-compute a lot of numbers, such as coefficients for Hermite
% polynomials, factorials, binomial coefficients.
S = init_tables(maxPhotonNumber);

% Make state vector for squeezed vacuum state.
v = 1/6;  %variance
ratioSwitch = 'true variance';
psi = generate_squeezed_vacuum_vector(v, maxPhotonNumber, ratioSwitch);
% The squeezed vacuum state may suffer from some loss by passing through a
% medium with etaState efficiency.
etaState = 1;
rho = apply_loss(psi,etaState,S);
% Now it must be represented by a density matrix, rho.

wignerStepSize = 0.1;
[x,p] = meshgrid(-4:wignerStepSize:4,-4:wignerStepSize:4);
wigner2 = wigner(rho, x,p);
mesh(x,p,wigner2); xlabel('x'); ylabel('p'); zlabel('W(x,p)');
```