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In [1]: def p(t):
        if t < 1.00 : return 4E5 * t
        if t < 3.00 : return 2E5 * (3-t)
        return 0.00

        mass = 6E05
        T_n = 0.60
        wn = 2*pi/T_n
        k = mass*wn**2
        zeta = 0.02
        wd = wn * sqrt(1.00-zeta**2)
        damp = 2*zeta*mass*wn

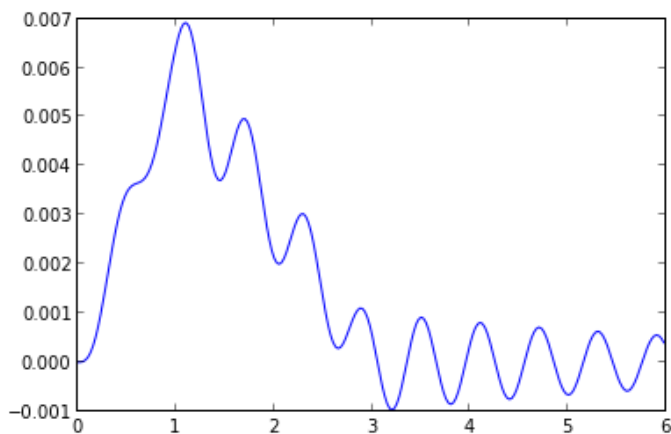
        h = 0.025
        cz = cos(wd*h)*exp(-zeta*wn*h)
        sz = sin(wd*h)*exp(-zeta*wn*h)

        x_ = [] ; v_ = [] ; t_ = []

        t = 0.00 ; X = 0.00 ; V = 0.00 ; P = p(t)

        while t < 6.00:
            x_.append(X) ; v_.append(V) ; t_.append(t)
            # print "%6.3f  %+12.10f  %+12.10f" % (t, X, V)
            t = t+h
            Ph = p(t)
            dx = P/k
            ddx = (Ph-P)/k
            B = X + 2*zeta*ddx/wn/h - dx
            A = (V + zeta*wn*B - ddx/h)/wd
            X = A*sz + B*cz + dx + ddx*(1-2*zeta/wn/h)
            V = (A*(wd*cz-zeta*wn*sz) -
                B*(wd*sz+zeta*wn*cz) + ddx/h)
            P = Ph
        plot(t_, x_)
```

Out[1]: [<matplotlib.lines.Line2D at 0x28a9c50>]



In []: