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#!/usr/bin/env python3
# -*- coding: utf-8 -*-
"""
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"""
import batman
import numpy as np
import matplotlib.pyplot as plt

def BatmanModel(t0=0.0,P=1.0,rad_pl=0.1,a=15.0,i=87.0,e=0.0,w=90.0,coeff=[0.5,0.1],plot=False):

    # Initialize the model
    params = batman.TransitParams()          #object to store transit parameters
    params.t0 = t0 #76.6764                  #time of inferior conjunction
    params.per = P #13.17562                 #orbital period
    params.rp = rad_pl #0.01602              #planet radius (in units of stellar radii)
    params.a = a #13.8                      #semi-major axis (in units of stellar radii)
    params.inc = i #88.19                   #orbital inclination (in degrees)
    params.ecc = e #0.0                     #eccentricity
    params.w = w #90.                       #longitude of periastron (in degrees)
    params.limb_dark = "quadratic"          #limb darkening model
    params.u = coeff #[0.4899, 0.1809]      #limb darkening coefficients [u1, u2]

    t = np.linspace(-.25, .25, 1000) #times at which to calculate light curve
    t_new = np.interp(t, (t.min(), t.max()), (0, 0.2))
    m = batman.TransitModel(params, t)      #initializes model

    flux = m.light_curve(params)            #calculates light curve

    if plot==True:
        fig,ax = plt.subplots()
        ax.get_yaxis().get_major_formatter().set_useOffset(False)
        ax.plot(t_new,flux)

    return (t_new,flux)
#BatmanModel()

```