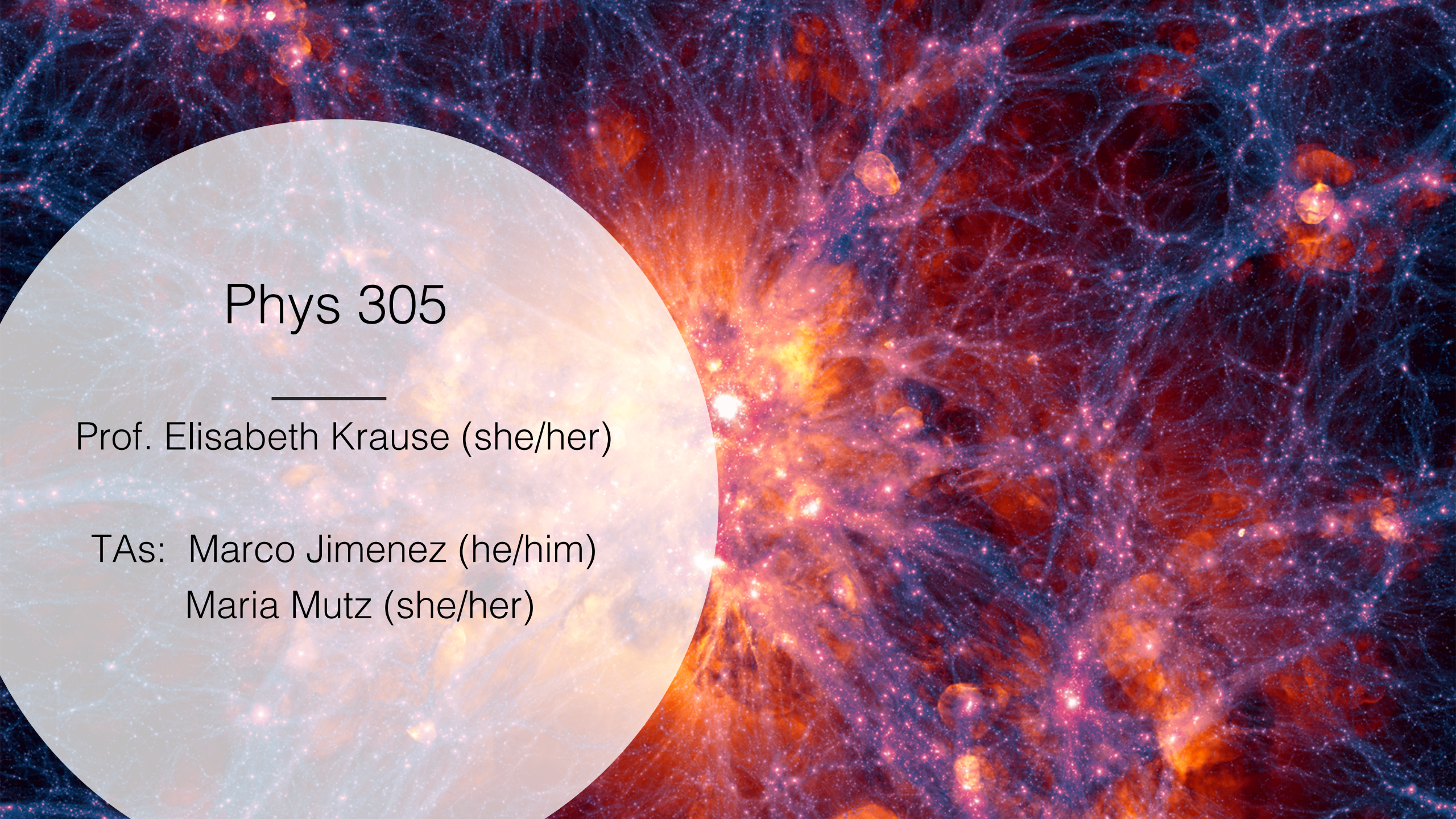

Phys 305

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Today's Lecture

- Announcements
  - **Problem Set 3** due 9/21/2020 at 5:00 pm (on D2L)
    - Note: no more point deductions for submitting a notebook instead of compressed folder with code for each problem!
- Today's lecture: Gaussian Quadrature
- Outlook: ODEs

Gaussian Quadrature

So far, we focused on uniformly spaced grid points (nodes). **Gaussian Quadrature** is an algorithm that chooses the nodes such that in the approximation

$$\int_a^b f(x)dx = \sum_{i=1}^{n} c_i f(x_i)$$

the error is minimized in the sense that the result is ***exact*** for the class of polynomials of degree (*2n-1*).

This is because Gaussian Quadrature treats both c_i and x_i as parameters, i.e., there are *2n* parameters which is the number of parameters in a polynomial of degree (*2n-1*).

Let's find out how in `GaussianQuadrature.ipynb`