

UNSTABLE STATES AT INTERFACES  
OF SPHERICAL GEOMETRY

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S u m m a r y

Using the impedance spectroscopy method of bifurcation identification, the model conceptions have been worked out to establish a functional connection between the electrode dimensions, faradaic impedance, and Hopf instability of an electrochemical system with an electrocatalytic reaction on a spherical electrode surface under potentiostatic conditions. This mechanism has two bifurcation points (two bifurcation frequencies), where the steady-states of the system become unstable, and spontaneous oscillations appear. The calculations show that the bifurcation frequency depends on the electrode size and the thickness of the layer, from which electroactive species diffuse.