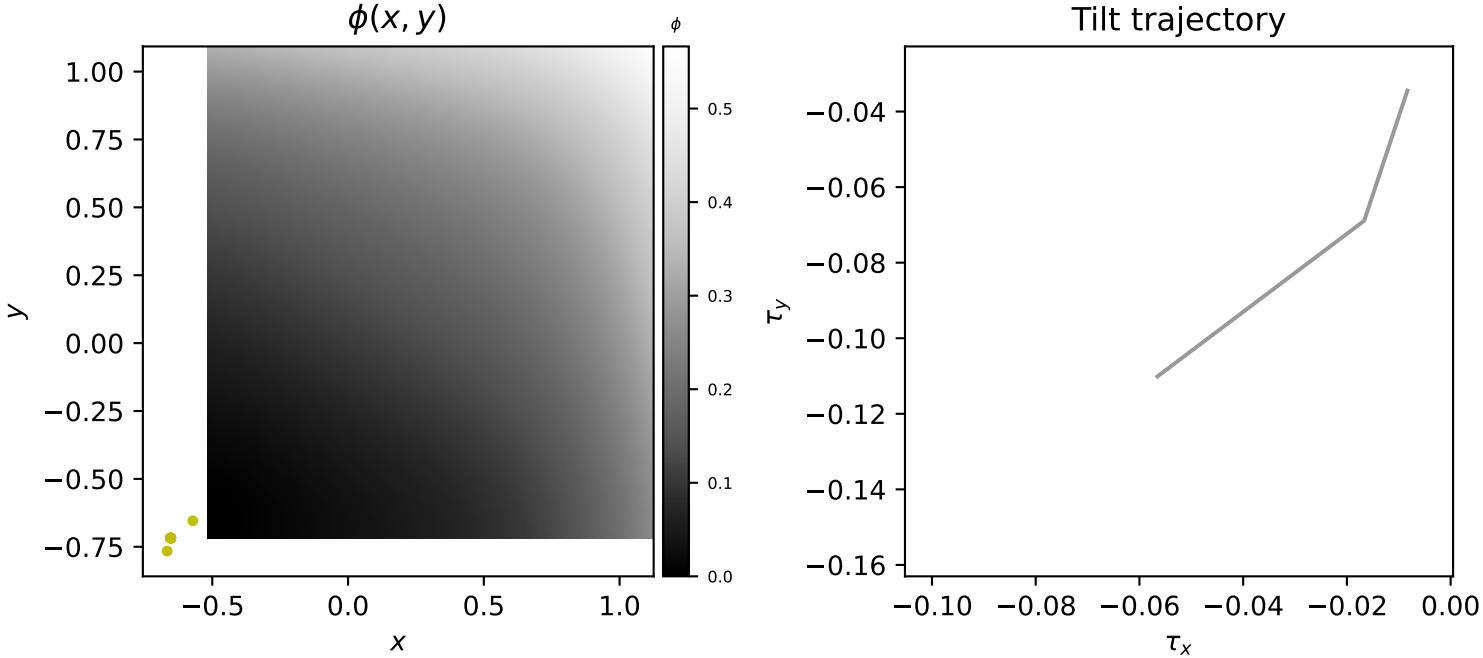Identifying bifurcations along tilt trajectory