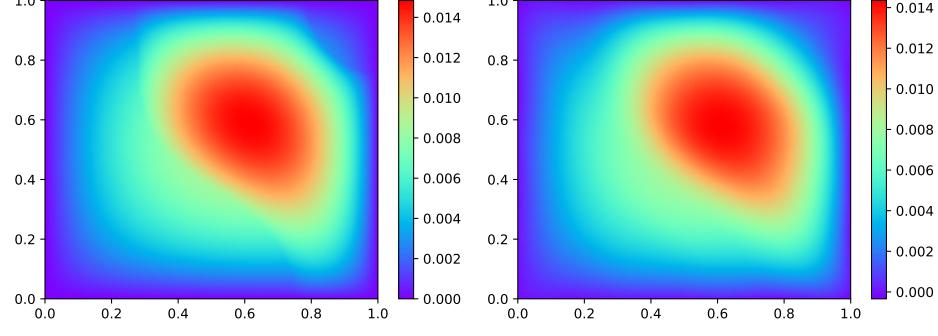case index = 199, rel err = 0.0417