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Large tunable inductance of the decorated Josephson chain IVAN SADOVSKYY, MATTHEW BELL, LEV IOFFE, Rutgers University, ALEXEI KITAEV, California Institute of Technology, MICHAEL GERSHENSON, Rutgers University — We discuss the new design of a tunable superconductive inductance made from the decorated frustrated Josephson junction chains frustrated by magnetic field. We show that for the optimal choice of parameters the inductance of this chain varies in a very wide range as a function of the magnetic field. The resulting plasma frequency may exceed the value of quantum resistance, $\sqrt{L/C} \gg h/(2e)^2$ that characterizes superinductance. The important distinction of this design from the chain of dc-SQUIDs loops is the absence of phase slips at all magnetic fields. We present the results of the extensive numerical simulations that confirm these expectations.

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