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Enhancement of pumped current in quantum dots. JUAN PABLO RAMOS, Universidad Tecnica Federico Santa Maria, Valparaiso, Chile, LUIS FOA, Universidad Nacional de Cordoba, Cordoba, Argentina, VICTOR MARCELO APEL, Universidad Catolica del Norte, Antofagasta, Chile, PEDRO ORELLANA, Universidad Tecnica Federico Santa Maria, Valparaiso, Chile — A direct current usually requires the application of a non-zero potential difference between source and drain, but on nanoscale systems (NSS) it is possible to obtain a non-zero current while the potential difference is zero. The effect is known as quantum charge pumping (QCP) and it is due to the interference provided by the existence of a time-dependent potential (TDP). QCP can be generated by a TDP in non-adiabatic limit. An example of this is a system composed by a ring with a dot embedded on it, under the application of an oscillating TDP. By the action of a magnetic field across the system, a pumped current is generated, since time reversal symmetry is broken. Decoherence is crucial, both from a scientific and technological point of view. In NSS it is expected that decoherence, among others things, decreases the QCP amplitude. In this context, we study what is the effect of a bath on the pumped current in our system. We find that for certain values of magnetic flux, the bath-system produce amplification of the pumped current. [1] J. P. Ramos *et al.* J. of appl. Phys. **115**, 124507, (2014). [2] M. Moskalets *et al.* Phys. Rev. B **64**, 201305, (2001).

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