# A trace formula and stability of square root domains for non-self-adjoint operators

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**Abstract.** We extend the classical trace formula connecting the trace of resolvent differences of two (not necessarily self-adjoint) operators $A$ and $A_0$ with the logarithmic derivative of the associated perturbation determinant from the standard case, where $A$ and $A_0$ have comparable domains (i.e., one contains the other) to the case where their square root domains are comparable. This is done for a class of positive-type operators $A$, $A_0$. We then prove an abstract result that permits to compare square root domains and apply this to the concrete case of 2nd order elliptic partial differential operators in divergence form on bounded Lipschitz domains.

This is based on various joint work with S. Hofmann, R. Nichols, and M. Zinchenko.