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Separation of singularities for the Bergman space and reachable space of the heat equation.

Let Ω_1 and Ω_2 be two open sets of the complex plane with non empty intersection. The separation of singularities problem can be stated as follows: if f belongs to the Bergman space of $\Omega_1 \cap \Omega_2$, can we find f_1 and f_2 belonging respectively to the Bergman spaces of Ω_1 and Ω_2, such that $f = f_1 + f_2$? In this talk, we will see general settings in which the previous question has a positive answer and we will apply these results to the description of the reachable space of the heat equation. Joint work with Andreas Hartmann.