Title: Substrate dependence on the early relaxation stages of photoexcited carriers in monolayer graphene

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- Photocarrier dynamics of graphene on various substrates is studied and compared.
- Surface polar phonons are found to be of great relevance to the relaxation times.
- Substrate induced screening dims the carrier-carrier scattering activity.
- The graphene-Al2O3 interface has the biggest impact of all the cases accounted for.