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Ultrafast carrier dynamics in pristine and $FeCl_3$-intercalated bilayer graphene XINGQUAN ZOU, Nanyang Technological University, Singapore, DA ZHAN, XIAOFENG FAN, DONGWOOK LEE, SARITHA K. NAIR, LI SUN, ZHENHUA NI, ZHIQIANG LUO, LEI LIU, TING YU, ZEXIANG SHEN, ELBERT E.M. CHIA — Ultrafast carrier dynamics of pristine bilayer graphene (BLG) and bilayer graphene intercalated with $FeCl_3$ ($FeCl_3$-G), were studied using time-resolved transient differential reflection ($\Delta R/R$). Compared to BLG, the $FeCl_3$-G data showed an opposite sign of $\Delta R/R$, a slower rise time, and a single (instead of double) exponential relaxation. We attribute these differences in dynamics to the down-shifting of the Fermi level in $FeCl_3$-G, as well as the formation of numerous horizontal bands arising from the *d*-orbitals of Fe. Our work shows that intercalation can dramatically change the electronic structure of graphene, and its associated carrier dynamics. Appl. Phys. Lett. **97, 141910** (2010)

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