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Title:Analyzing morphology and thermal history of polybutylene terephthalate by THz time-domain spectroscopy
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Abstract:We have measured the frequency-dependent dielectric function of semi-crystalline polybutylene terephthalate (PBT) in the terahertz region between 100 GHz and approximately 2.8 THz. A characteristic band is observed around 2.38 THz. The intensity of this band is a good indicator of the degree of crystallinity of the different samples. A potential assignment of this band is proposed, based on the comparison with spectroscopic data of the structurally very similar polyethylene terephtalate (PET). Furthermore, the frequency-dependent index of refraction of PBT reveals more insight about the morphology and different thermal history of the samples under investigation.
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