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Hybrid anomaly-gravity mediation with flavor

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We consider supersymmetric models where anomaly- and gravity mediation give comparable contributions to the soft terms. An Abelian flavor symmetry is invoked to explain both the observed matter flavor structure and an alignment of the sparticles. As an illustration, we present an example where the constraints from flavor- and CP violation, such as coming from $\mu \rightarrow e + \gamma$ and EDMs, are fulfilled. We also briefly discuss a possible origin of our phenomenological hybrid ansatz in a microscopic theory. In our setup, the gravity mediated contribution to the soft terms cures the tachyonic slepton problem of pure anomaly mediation. Compared to pure gravity mediation, on the other hand, an advantage of our hybrid scenario is the heavy gravitino. This can ease the cosmological gravitino problem which typically is present in gravity mediated models combined with leptogenesis.

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