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Edgar Enochs (enochs@ms.uky.edu), 719 Patterson Office Tower, Lexington, KY 40506 0027, **Sergio Estrada*** (sestrada@um.es), Campus del Espinardo, 30100 Murcia, Murcia, Spain, and **Alina Iacob** (aiacob@georgiasouthern.edu), Georgia Ave. Room 3008, Statesboro, GA 30460 8093. *Complete cotorsion pairs, model structures and adjoints in homotopy categories.*

We will show the interlacing between complete cotorsion pairs, model structures and the existence of adjoints in homotopy categories. This will give a method of constructing adjoint functors between homotopy categories as well as a method for constructing abelian model structures in the category of unbounded complexes of certain abelian categories. We illustrate our methods by recovering some recent results of Neeman and Murfet as particular instances. And we also find new abelian model structures both in $\mathbb{C}(R)$ and in $\mathbb{C}(\mathcal{Q}\mathbf{co}(X))$ attained to classes which are non necessarily closed under direct limits. (Received January 19, 2011)