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**Review text:**

In the paper under review the authors study several properties of ring hulls with respect to some classes of rings $\mathcal{R}$ (the class of Baer rings $\mathcal{B}$, the class of quasi-Baer rings ${}_q\mathcal{B}$, the class of right FI-extending rings $\mathcal{FT}$, the class of right extending rings $\mathcal{E}$, and the class of right quasi-continuous rings $q\mathcal{C}on$) under various ring extensions, including group ring extensions, full and triangular matrix ring extensions, and infinite matrix ring extensions. Among others they study ring hulls with respect to the class of Baer rings in semiprime monoid rings, they prove that, under reasonable conditions, the ring hull with respect to some class of rings of $\mathcal{M}_n(R)$ coincide with the matrix ring of the ring hull of $R$ and that the ring hull with respect to the class of quasi-Baer rings of the corner of a semiprime ring $R$ with respect to an idempotent $e$ of $R$, $eRe$, coincides with the corner of the ring hull of $R$ with respect to $e$. These results imply that if $R$ and $S$ are two semiprime Morita equivalent rings, then their ring hull with respect to the class of quasi-Baer rings are Morita equivalent. As an application, they prove that if two unital $C^*$-algebras $A$ and $B$ are Morita equivalent as rings, then the bounded central closures of $A$ and $B$ are strongly Morita equivalent as $C^*$-algebras.