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From supernovae to galaxy clusters : observing the chemical enrichment in the hot intra-cluster medium

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From supernovae to galaxy clusters

Observing the chemical enrichment in the hot
intra-cluster medium

François Mernier

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Cover: Composite image of the Phoenix cluster (Credit: NASA/CXC/MIT/STScI). The X-ray emission (blue) shows the hot intra-cluster medium, while the cluster galaxies and star-forming filaments can be seen in optical (yellow and red). The front image shows an artist impression of the *XMM-Newton* satellite (Credit: ESA), together with metal lines derived from EPIC X-ray spectra (see Chapter 3 and summary).

From supernovae to galaxy clusters

Observing the chemical enrichment in the hot
intra-cluster medium

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À mes parents

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*Quand on me demande: «À quoi sert l'astronomie?»
il m'arrive de répondre: «N'aurait-elle servi qu'à révéler tant de beauté,
elle aurait déjà amplement justifié son existence.»*

*When people ask me: "What is the use of astronomy?"
I sometimes answer: "If its use was only to reveal such beauty,
astronomy would have already amply justified its existence."*

– Hubert Reeves, *Patience dans l'azur*