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Clues to galaxy evolution from chemical abundances of stars in the Galactic centre

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We present a detailed study of the composition of 20 M giants in the Galactic center with 15 of them confirmed to be in the nuclear star cluster. As a control sample we have also observed 7 M giants in the Milky Way disk with similar stellar parameters. All 27 stars are observed using the NIRSPEC spectrograph on the KECK II telescope in the K-band at a resolving power of R=23,000. We report the first silicon abundance trends versus [Fe/H] for stars in the Galactic center. While finding a disk/bulge like trend at subsolar metallicities, we find that [Si/Fe] is enhanced at supersolar metallicities. We speculate on possible enrichment scenarios to explain such a trend. Further, we present new results on high resolution spectroscopy performed on stars in the nuclear star clusters that have earlier been identified as young stars with ages below a few hundred million years.

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