LINE STRENGTH GRADIENTS IN LOW LUMINOSITY GALAXIES

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Line strength gradients in luminous ellipticals show changes in metallicity of roughly a factor of two out to an effective radius (Worthey, Faber & Gonzalez, 1992; Davies, Sadler & Peletier (DSP), 1993; Gonzalez, 1993). The observed decline in Mg_2 line strength with increasing radius, while $H\beta$ remains roughly constant, has been interpreted to indicate an age gradient with the central parts of ellipticals being younger than the outer regions.

We have taken high quality long slit spectra of 14 low luminosity ellipticals (LLEs) ($-17 \geq M_B \geq -20$), and made preliminary measurements of Mg_2 and $H\beta$. We find measurements of Mg_2 in LLEs imply that the metallicity is lower by a factor of $\simeq 3$ than in the luminous galaxies but has a similar gradient. However the $H\beta$ values are similar to those in luminous ellipticals and remain constant as a function of radius.

Interpreted as single age stellar populations and using Worthey's models we would conclude that the ages of LLEs could be somewhat older than the more luminous systems. This conclusion may however be too naive. Mg is overabundant in luminous elliptical galaxies compared to Fe (Worthey, Faber & Gonzalez 1992, DSP) and this overabundance may not persist at lower luminosities. Accounting for this effect will increase age estimates for luminous ellipticals based on Worthey's models.

In the future we plan to measure line strengths for the weaker features in these spectra, and determine the rotation, line shapes and velocity dispersion with radius.

References

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