

## The dwarf Wolf-Rayet galaxy II Zw 33

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**Abstract.** II Zw 33 is a gas-rich Wolf-Rayet galaxy with a low surface-brightness companion galaxy. Neither II Zw 33 nor its companion need any dark matter in order to explain the observed rotation curves. The available observations support a scenario in which the companion has triggered the current burst of star formation in II Zw 33.

### Discussion

II Zw 33 is a prominent example of a WR galaxy (see *e.g.*, Vacca & Conti 1992). A high resolution H $\alpha$  study by Mendez *et al.* (1998) shows that the current starburst is propagating from the center outwards, along the apparent bar of II Zw 33. HI observations revealed a low surface-brightness companion galaxy at almost the same redshift. The companion has virtually the same HI mass as the parent galaxy although their optical properties are quite different. A dynamical analysis shows that out to the last measured point on their rotation curve, surprisingly, neither II Zw 33 nor its companion require any dark matter (for details, see Walter *et al.* 1997). Using best estimates for the orbital parameters, we derive a time elapsed since peri-galacticon of  $3 \times 10^8$  years. This number is in excellent agreement with the model by Noguchi & Ishibashi (1986), who derive the maximum star-formation activity to occur on this time-scale. Therefore, based on our HI and optical observations as well as Mendez's (1998) H $\alpha$  study it is likely that the companion has triggered the current burst of star-formation in II Zw 33, transforming a quiet dwarf-irregular into a Wolf-Rayet galaxy.

### References

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