

## **Doppler Wobbler**

Double concerto for Viola, Bassoon and ensemble  
(2011)

Ivo Nilsson  
(1966)

### Program note

When composing this Double concerto, I imagined the two soloists being planets rotating at different speed around a star (the ensemble). And when looking for information about how planets orbit, I found out that there is a method called Doppler wobble used to find planets in other solar systems.

It is based on the fact that a planet exerts a slight Gravitational pull on its parent star. This causes the parent star to “wobble” and the velocity of this wobble depends on the mass of the planet and the distance at which it orbits from the parent star. The motion can be detected by using the Doppler effect, due to the motion having an effect of the spectrum of light emitted from the star. As the planet moves towards the point of observation, (in this case the Earth) the parent star is further away which stretches the wavelengths out and shifts them towards to red end of the spectrum; red-shift. The reverse happens as the planet moves away from the Earth; the parent star is closer to the Earth, compressing the wavelengths of emitted light and shifting them towards the blue end of the spectrum; blue-shift. The shifts in the spectrum are called Doppler Shifts, giving the method its name. Measurements of the stars spectrum are taken over time and then studied to see if these shifts indicate the presence of a planet.

Doppler Wobbler has four movements and was written for the Austrian Ensemble Reconsil