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8 ~ 10m 级光学 / 红外望远镜的高分辨率光谱仪

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摘 要

介绍并比较了 Keck Subaru VLT HET 及 Gemini 中的 5 架 8 ~ 10m 天文望远镜的高分辨率光谱仪，分析这些仪器与 2 ~ 4m 级望远镜的阶梯光栅光谱仪或 Coudé 光谱仪相比所采用的新设计思想和新技术.

关 键 词 光学望远镜：高分辨率 — 阶梯光栅 — 光谱仪

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High Resolution Spectrographs for 8 ~ 10m Class Optical/IR Telescopes

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Abstract

There are more than one dozen of 8 ~ 10m class optical/IR telescopes recently completed, presently under construction, or planed. The construction of these large telescopes in astronomy has brought new opportunities for astrophysical research using high-resolution spectroscopy, at the same time, the designers of high resolution spectrographs for large telescope must also respond to new challenges since resolution of spectrograph against the aperture of telescope. In this paper, we review the design of several spectrographs planed or already available for use on 8 ~ 10m telescopes. These include Keck–HIRES, Subaru–HDS, VLT–UVES, HET–HRS and Gemini–HROS. Some new technologies and new design concepts are used in these spectrographs: white pupil design, very steep replicated mosaic echelles, immersed gratings, and refractive or catadioptric cameras.

Key words Optical/IR telescope: high resolution—echelle—spetrograph