NIRPS: the new Near-InfraRed Planet Searcher joining HARPS on the 3.6-m

Nolan Grieves
Observatoire de Genève
University of Geneva

NIRPS Science

GTO 725 nights over 5 years - three main Work Packages:

WP1: M-dwarfs RV survey

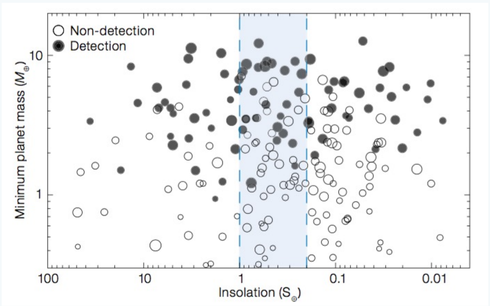
WP2: Transit Follow-up of M targets → mainly TESS

WP3: Exoplanet atmosphere characterization

*HARPS + NIRPS simultaneously to mitigate stellar activity

AO guiding camera to rule out blended EBs

http://www.astro.umontreal.ca/nirps

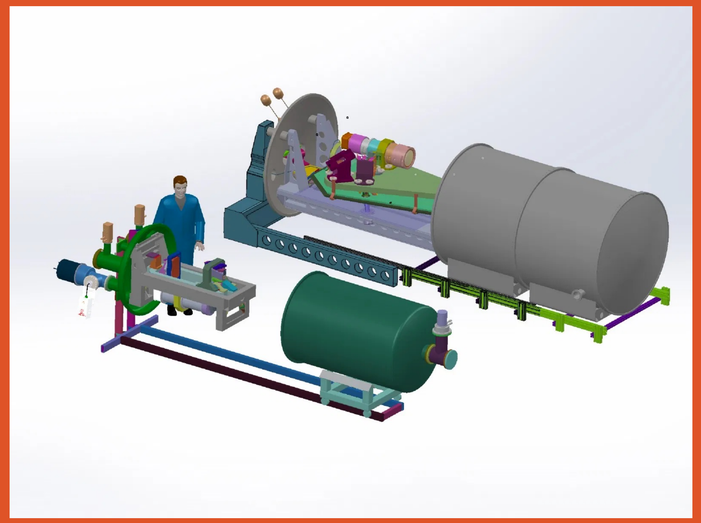


Simulated NIRPS planet surveys / 100 stars / 150-200 visits
Bouchy et al. 2017, The Messenger, 169, 21

UNIVERSITÉ DE GENÈVE
FACULTÉ DES SCIENCES
Département d'astronomie
PlanetS
National Centre of Competence in Research

NIRPS
LOOKING FOR BLUE PLANETS AROUND RED STARS

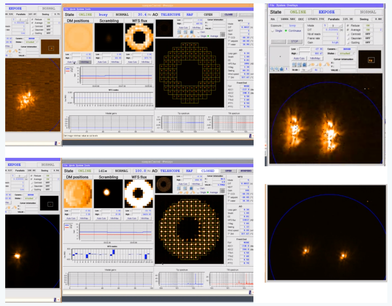
- **near-infrared 0.98 – 1.8 μm spectrograph to operate simultaneously with HARPS on ESO 3.6-m in La Silla, Chile: ideal for M-dwarf companion discoveries**
- **adaptive optics allows smaller spectrograph with high throughput and spectral resolution**
- **HARPS+NIRPS allows new stellar activity mitigation and atmospheric studies**



NIRPS vs SPIRou
http://www.astro.umontreal.ca/nirps/?p=467

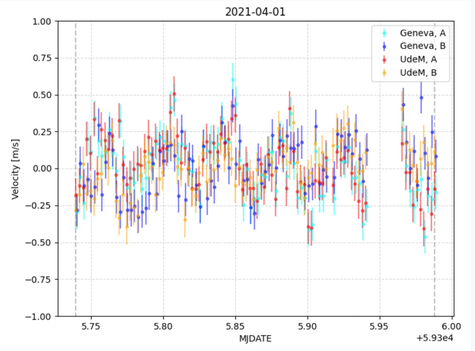
Current Results

Adaptive Optics



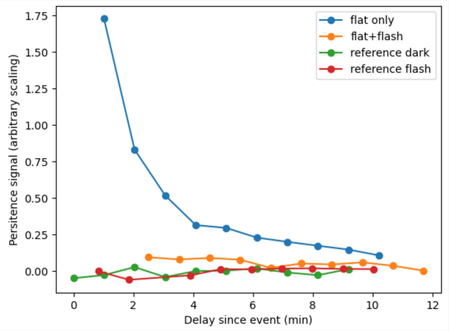
NIRPS workstation with open (top) and closed (bottom) AO loop on an isolated star (left) and on a binary (right)

Instrument Drift



Drift sequence for the HA mode extracted with the ESPRESSO and APERO pipelines. The periodic modulations are correlated with room temperature. In lab stability **below 50 cm/s** in short time scale, relative stability between both fibers below this limit

Persistence Removal



New flash-flooding method for persistence removal