

Workshop Laboratorio Spettroscopia INAF

Report of Contributions

Contribution ID: 16

Type: **not specified**

Aims and organization of the national laboratories at INAF

Monday, 10 June 2019 11:30 (15 minutes)

Presenter: FONTANA, Adriano

Session Classification: Intro to the Lab Concept

Contribution ID: 17

Type: **not specified**

Towards a new INAF laboratory for spectroscopy

Monday, 10 June 2019 11:45 (15 minutes)

Presenters: SACCO, Germano; SCODEGGIO, Marco

Session Classification: Intro to the Lab Concept

Contribution ID: **18**

Type: **not specified**

WEAVE and 4MOST Galactic Surveys

Monday, 10 June 2019 12:30 (20 minutes)

Presenter: LUCATELLO, Sara

Session Classification: Requirements and needs from current and future Spectroscopic Surveys

Contribution ID: 19

Type: **not specified**

A 4MOST survey of young stars in the solar neighbourhood: the role of the laboratory

Monday, 10 June 2019 12:50 (20 minutes)

Presenter: SACCO, Germano

Session Classification: Requirements and needs from current and future Spectroscopic Surveys

Contribution ID: 20

Type: **not specified**

MOONS GTO GALACTIC Survey and Labs

Monday, 10 June 2019 12:00 (30 minutes)

In this talk I will briefly review the main features of the MOONS GTO Galactic Survey, including data treatment. I will also pose some questions for discussion concerning Labs.

Presenter: ORIGLIA , Livia

Session Classification: Requirements and needs from current and future Spectroscopic Surveys

Contribution ID: 21

Type: **not specified**

WEAVE Extragalactic Survey

Presenter: IOVINO, Angela

Session Classification: Requirements and needs from current and future Spectroscopic Surveys

Contribution ID: 22

Type: **not specified**

MOONS extragalactic surveys

Monday, 10 June 2019 14:30 (30 minutes)

Presenter: GARILLI, Bianca

Session Classification: Requirements and needs from current and future Spectroscopic Surveys

Contribution ID: 23

Type: **not specified**

Lessons for the Future from High-Resolution Surveys

Monday, 10 June 2019 15:00 (20 minutes)

High-resolution spectroscopy traditionally has been one of the first fields in which the standardization of the data and the implementation of an end-to-end concept of the instrumentation has taken place. The HIRES @ Keck and UVES and, more recently, ESPRESSO @ VLT are paramount recent examples in this sense (e.g. KODIAK, Popler).

This overview talk will try to extract the lessons derived from the past experience, with particular attention to the software requirements, including instrument simulators, data reduction and analysis, and their importance in the conception of new instruments, planning of surveys and their scientific exploitation, emphasizing the role of automatic tools and the dissemination of the science data products

Presenter: CRISTIANI, Stefano

Session Classification: Requirements and needs from current and future Spectroscopic Surveys

Contribution ID: 24

Type: **not specified**

Spectroscopic characterisation of sub-stellar objects

Monday, 10 June 2019 15:20 (20 minutes)

Presenter: D'ORAZI, Valentina

Session Classification: Requirements and needs from current and future Spectroscopic Surveys

Contribution ID: 25

Type: **not specified**

The ICT Office at INAF: todays activity and future plans.

Presenter: TAFFONI, Giuliano

Session Classification: Requirements and needs from current and future Spectroscopic Surveys

Contribution ID: 26

Type: **not specified**

Spectroscopic pipelines from VLT/VIMOS to the LBT instruments and beyond

Starting from the work with the ESO/VLT VIMOS spectrograph, we have developed a spectroscopic pipeline that has been used to reduce data from many spectroscopic surveys (VVDS, zCOSMOS, VIPERS, VANDELS). This software was then used to create the pipelines used by the LBT Data Reduction Center, to reduce spectroscopic data obtained with the LUCI and MODS instruments at LBT, and we are preparing a public release for these pipelines, that can become the starting point for a general purpose spectroscopic pipeline, at least for long-slit and MOS data.

Presenter: SCODEGGIO, Marco

Session Classification: Requirements and needs from current and future Spectroscopic Surveys

Contribution ID: 27

Type: **not specified**

Spectroscopic pipelines from VLT/VIMOS to the LBT instruments and beyond

Monday, 10 June 2019 16:00 (30 minutes)

Presenter: SCODEGGIO , Marco

Session Classification: Data processing and data analysis pipelines

Contribution ID: 28

Type: **not specified**

QSFit: Automatic analysis of AGN optical spectra

Monday, 10 June 2019 16:30 (20 minutes)

The QSFit package allows to perform automatic analysis of optical/UV AGN spectra. The software is very easy to use (it just requires the input FITS file) and provides estimates of: emission line luminosities, widths and velocity offsets; host galaxy luminosities; iron lines luminosities at optical and UV wavelengths; Balmer continuum luminosities; continuum slopes and luminosities at several wavelengths; etc. The ultimate purpose of QSFit is to allow astronomers to run standardized recipes to analyse the AGN data, in a simple, replicable and shareable way.

I will present the analysis algorithm and the scientific exploitation of the first catalog of spectral properties, measured on a sample of ~70,000 SDSS spectra of type I AGN with $z < 2$ (Calderone et al. 2017, <http://qsfit.inat.it>). Also, I will show how to perform the analysis on new spectral data (regardless of the telescope/instrument used), how to customize the procedure for specific needs, and discuss how QSFit is currently being employed to analyze the low-resolution spectra of AGN in the J-PAS survey.

Presenter: CALDERONE , Giorgio

Session Classification: Data processing and data analysis pipelines

Contribution ID: 29

Type: **not specified**

Present and Future of stellar spectroscopy

Monday, 10 June 2019 16:50 (30 minutes)

Presenter: GRATTON, Raffaele

Session Classification: Data processing and data analysis pipelines

Contribution ID: 30

Type: **not specified**

Measuring gas-phase metallicities in distant galaxies

Monday, 10 June 2019 17:20 (30 minutes)

Presenter: MANNUCCI, Filippo

Session Classification: Data processing and data analysis pipelines

Contribution ID: 31

Type: **not specified**

Methodological challenges in the spectroscopic estimates of stellar population parameters from low to high redshift

Presenter: ZIBETTI, Stefano

Contribution ID: 32

Type: **not specified**

Methodological challenges in the spectroscopic estimates of stellar population parameters from low to high redshift

Tuesday, 11 June 2019 09:10 (20 minutes)

Presenter: ZIBETTI, Stefano

Session Classification: Modeling

Contribution ID: 33

Type: **not specified**

INTRIGOSS: A library of High Resolution synthetic spectra for FGK stars

Tuesday, 11 June 2019 09:30 (30 minutes)

Presenter: FRANCHINI, Mariagrazia

Session Classification: Modeling

Contribution ID: 34

Type: **not specified**

The Italian Astronomical Archive (IA2): status of the services and future perspectives

Tuesday, 11 June 2019 10:00 (20 minutes)

Presenter: LONDERO, Elisa

Session Classification: Scientific Databases

Contribution ID: 35

Type: **not specified**

Large-scale spectroscopic surveys management

Tuesday, 11 June 2019 10:20 (20 minutes)

Presenter: FRAZETTI, Paolo

Session Classification: Scientific Databases

Contribution ID: 36

Type: **not specified**

Expandable Management of Astrophysical Catalogues: the case of CLASH-VLT data

Tuesday, 11 June 2019 10:40 (20 minutes)

Presenter: RICCIO, Giuseppe

Session Classification: Scientific Databases

Contribution ID: 37

Type: **not specified**

Astroinformatics and Astrophysics, a virtuous synergy in the Big Data era

Tuesday, 11 June 2019 11:40 (30 minutes)

Presenter: BRESCIA, Massimo

Session Classification: Artificial Intelligence and New technologies

Contribution ID: 38

Type: **not specified**

Data processing for high-resolution spectroscopy: today and tomorrow

Tuesday, 11 June 2019 12:10 (20 minutes)

INAF has a long tradition in the treatment of spectroscopical data. The Astronomical Observatory of Trieste (OATs), in particular, has always been at the forefront of the field, both validating the state-of-the-art software (e.g. the VLT UVES and X-shooter pipelines) and implementing new solutions

for the analysis of near-UV to near-IR medium-to-high resolution quasar spectra.

In this talk, I will present some of the results we distributed through the years: the XQ-100 catalogue of processed quasar spectra, the Data Analysis Software for VLT ESPRESSO, and the new Python package Astrocook, which is aimed to pave the way towards the next-generation instruments like the ELT hi-res spectrograph. I will emphasize the core features of our approach (automation through abstraction of human behavior, modularity, graphical functionalities) and underline the most important challenges for the future (integration with the archive infrastructure, end-to-end instrument simulation).

Presenter: CUPANI, Guido

Session Classification: Artificial Intelligence and New technologies

Contribution ID: 39

Type: **not specified**

SyNaLoTA, a web infrastructure for astrophysical data analysis and exploration

Tuesday, 11 June 2019 12:30 (20 minutes)

On top of modern large astrophysical data repositories, a fast, flexible, portable and efficient system for data analysis and exploration is required. We present SyNaLoTA (Systems from Naples for Long Term Analysis), a web based infrastructure, specialized in monitoring, analysis and visualization of scientific data. Initially designed and under development for the ESA Euclid Mission Instrument Operation Team, it can be easily tuned and extended to pursue data exploration within any astrophysical context. Its embedded services, like dynamic plots and diagrams, interactive handling of images, advanced statistical tools, can be extended and calibrated for any kind of astrophysical investigation, including also machine and deep learning facilities.

Presenter: RICCIO, Giuseppe

Session Classification: Artificial Intelligence and New technologies

Contribution ID: 40

Type: **not specified**

Is this lab properly aimed? Optimizing data quality and analysis by focusing on the design, calibration and maintenance of the spectrometers.

Tuesday, 11 June 2019 12:50 (20 minutes)

The analysis of data is too often considered as a task that must inevitably accept and correct the problems related to the instrumentation.

Many FTEs are therefore dedicated to developing tools and tricks to mitigate these problems; and when these FTEs are not available the data are poorly used or not used at all.

In most cases, the instrumental problems can be solved using far less efforts and resources. Unfortunately, this very rarely occurs because of the traditionally radicated ways of thinking that separate the “instrumentation technologists” from the “astronomers”. I will give some practical examples in my talk.

A national laboratory for spectroscopy could be the ideal opportunity to create a constructive collaboration between the two groups. Instead, leaving instrumental technology out of the initiative could aggravate the separation.

Presenter: OLIVA, Ernesto

Session Classification: Artificial Intelligence and New technologies

Contribution ID: 41

Type: **not specified**

Open discussion on aims, organization and future actions for the laboratory

Tuesday, 11 June 2019 14:10 (2h 10m)

Presenters: FONTANA, Adriano; SACCO, Germano; SCODEGGIO, Marco

Session Classification: Laboratory goals, timeline, and organization

Contribution ID: 42

Type: **not specified**

WEAVE-StePS - Lessons learned

Monday, 10 June 2019 14:10 (20 minutes)

In this talk we will present what are the tools that we think are needed to prepare efficiently science exploitation of forthcoming spectroscopic extragalactic large surveys.

We will discuss our experience of planning for the forthcoming WEAVE-StePS survey, highlighting the advantages offered by the availability of simple tools that enable realistic simulations of the whole process from observations to retrieval of physical measurements from observed spectra.

Presenter: IOVINO, Angela

Session Classification: Requirements and needs from current and future Spectroscopic Surveys

Contribution ID: 43

Type: **not specified**

The ICT Office at INAF: todays activity and future plans.

Tuesday, 11 June 2019 11:00 (20 minutes)

The ICT office of the Science Directorate of INAF has the primary role to support INAF researchers in scientific and technological activities related to Information Technology (IT) at large.

IT is playing a crucial role in present and future scientific activities. New challenges in astronomy require the use of modern ICT tools and frameworks such as efficient large storage systems, distributed databases, cloud infrastructures and HPDA computing resources. Besides, new technologies

and algorithms will be necessary to reduce, analyses and explore the “big data” from new experiments.

These challenges are common to the all the Astronomy and Astrophysics research communities in INAF so that software development methods, scientific data management and their use through general-purpose computing facilities can be focused into a more general perspective.

ICT office is working to support the interaction between the various research community, it is willing to facilitate the exchange of experiences and share of resources when possible and useful. The services presently offered to the INAF community by the ICT Office in the area of computing, database, software development and preservation, dissemination and e-Learning are presented in this talk.

On the other side, we will also collect useful requirements and ideas to capture better the needs of INAF researchers and improve our work as ICT Office.

Presenter: DI GIORGIO, Anna

Session Classification: Scientific Databases