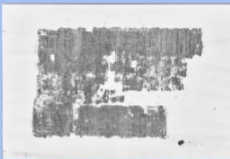# The Greek philosophical schools according to Europe's earliest history of philosophy
Towards a new pioneering critical edition of Philodemus' *Arrangement of the Philosophers*

GREEK SCHOOLS

Principal Investigator
Graziano RANOCCHIA[1,2]

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PUGLIA Enzo[2] VASSALLO Christian[2,3] PERNIGOTTI Carlo[1] FLEISCHER Kilian[2,4] VERHASSELT Gertjan[1,2] ALESSANDRELLI Michele[5] MILIANI Costanza[2] ROMANO Francesco Paolo[6]
ROSI Francesca[7] CALIRI Claudia[6] PAVONE Danilo Paolo[6] PREISLER Zdenek[6] ZENZARO Simone[8] BOSCHETTI Federico[8] DEL GROSSO Angelo Mario[6] ENEA Alessandro[8]

[1]Dipartimento di Filologia, Letteratura e Linguistica, Università di Pisa, Pisa, Italy [2]Consiglio Nazionale delle Ricerche, Istituto di Scienze del Patrimonio Culturale (CNR-ISPC), Naples, Italy [3]Dipartimento di Culture, Educazione e Società, Università della Calabria, Cosenza, Italy [4]Institut für Klassische Philologie, Julius-Maximilians-Universität Würzburg, Würzburg, Germany [5]Consiglio Nazionale delle Ricerche, Istituto per il Lessico Intellettuale Europeo e Storia delle Idee (CNR-ILIESI), Rome, Italy [6]Consiglio Nazionale delle Ricerche, Istituto di Scienze del Patrimonio Culturale (CNR-ISPC), Catania, Italy [7]Consiglio Nazionale delle Ricerche, Istituto di Scienze e Tecnologie Chimiche, Perugia, Italy [8]Consiglio Nazionale delle Ricerche, Istituto di Linguistica Computazionale 'A. Zampolli' (CNR-ILC), Pisa, Italy
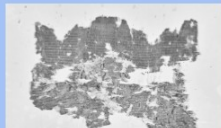
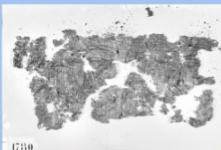## New critical edition with updated methodology

Our knowledge about **Greek philosophical schools** is mostly second-hand and based on Diogenes Laërtius' *Lives of Eminent Philosophers* (3rd century AD) and **Philodemus'** *Arrangement of the Philosophers* (75-50 BC), a treatise in several books which represents the earliest 'history of philosophy' to have reached us directly from antiquity. From this work exclusively preserved by the **Herculaneum papyri** we may derive a virtually systematic account of the history of Greek philosophical schools, which is unique in its kind.

PHerc. 1021, cornice 8, Infrared image (© BNN/CNR)

GreekSchools aims to provide a **new critical edition**, with introduction and commentary, of **Philodemus'** *Syntaxis* in its different sections:
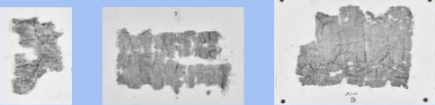
(a) the *Academicorum Index* (PHerc. 1691/1021, PHerc. 164)

(b) the *Stoicorum Index* (PHerc. 1018)

(c) the *Epicureorum Index* (PHerc. 1780)

(d) the [*Life of Socrates*] (PHerc. 495 and PHerc. 558)

(e) the [*History of the Pythagorean School*] (PHerc. 1508)

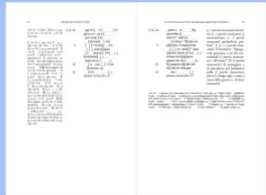(f) the [*History of the Eleatic and the Atomistic Schools*] (PHerc. 327).

PHerc. 1018, cornice 1, Infrared image (© BNN/CNR)

PHerc. 558 (left), PHerc. 327 (middle) and PHerc. 1508 (right), Infrared images at 1000 nm (© BNN/CNR)

PHerc. 1780, cornice 1, Infrared image (© BNN/CNR)

New philological approaches are adopted in order to produce a more reliable and substantially improved critical text of **Philodemus'** *Syntaxis* through an **innovative editorial system**. This includes both a diplomatic and a literary transcription endowed with a paleographic and a philological apparatus.

All editions are based on **autopsy** of the **original papyri**, kept in the **Officina dei Papiri Ercolanesi** of the **Biblioteca Nazionale of Naples**, which collaborates with the Project by offering logistical assistance and by providing extra space for the planned experiments.

G. Ranocchia, La Vita di Aristone di Chio nella Rassegna degli Stoici di Filodemo (PHerc. 1018, coll. 10 e 33-37), AnPap, 22 (2020), 8-156.

Biblioteca Nazionale "Vittorio Emanuele III", Naples *Piaggio Machine* *Officina dei Papiri Ercolanesi, Reading Room*

Multimodal analyses of Herculaneum papyri through advanced techniques

Noninvasive techniques are applied to **opistograph and multi-layered papyri** belonging to **Philodemus'** *Syntaxis*, as well as to other papyri, in order to (a) read the text hidden on the **verso**, (b) detect, classify and replace **overlapping layers**, and (c) read the text concealed in the latter.

In particular, we are applying **Macro-X-Ray Fluorescence Imaging, Shortwave-Infrared Hyperspectral Imaging, TeraHertz Imaging, Optical Coherence Tomography, 3D Microscopy, Nuclear Magnetic Resonance Relaxometry** and **Technical Photography**.

Macro-X-Ray Fluorescence Imaging Instrument (CNR-ISPC, Catania) being lifted (left) and in operation (middle); detail of the same (right)

A case study:
Shortwave-Infrared Hyperspectral Imaging

Enhancement of the recto

SWIR Hyperspectral Imaging substantially increased the legibility of the text lying on the recto of **Herculaneum papyri** by producing **a much higher contrast** between writing and papyrus substrate than was the case through previous imaging at 950 nm. This enabled to read an average of about **five words more per column** with respect to previous imaging at 950 nm, with an overall **textual increment** of **more than 30%** for the whole roll.
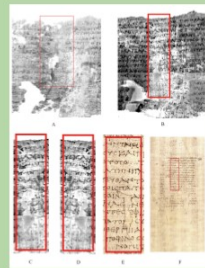
Fig. 4. PHerc. 1021, cornice 4, general view. Image at 950 nm (© Biblioteca Nazionale "Vittorio Emanuele III," Napoli—Brigham Young University, Provo) (A) and PC1 SWIR hyperspectral image (© Biblioteca Nazionale "Vittorio Emanuele III," Napoli—Consiglio Nazionale delle Ricerche) (B). From: A. Tournié et al., SciAdv. 2019; 5 : eaav8936
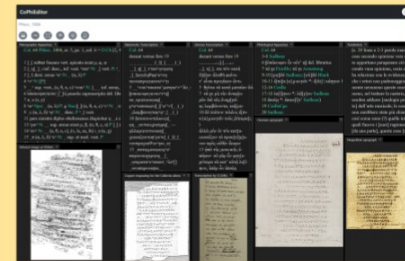
Revealing of the verso

The application of **SWIR Hyperspectral Imaging** to the opistograph roll *PHerc. 1691/1021* revealed portions of Greek text hidden on the **verso** more than 220 years after their first discovery, making it possible to recover this primary source for the new edition of this book. This was confirmed by comparison with the corresponding **Oxonian apographs**, drawn in **1795**, where the same passages could easily be identified.

PHerc. 1021, cornice 1, recto cols. 5-6, intercolumnium. Image at 950 nm (no text visible from the verso) (© Biblioteca Nazionale "Vittorio Emanuele III," Napoli—Brigham Young University, Provo) (A). PC3 SWIR hyperspectral image showing text from the verso (B) and detail of the same (C). The same text mirrored. (© Biblioteca Nazionale "Vittorio Emanuele III," Napoli—Consiglio Nazionale delle Ricerche) (D). The corresponding text in Oxonian drawing V (E). Full picture of Oxonian drawing V (© The Bodleian Library, MS. Gr. Class. c. 4, fol. 726) (F). From: A. Tournié et al., SciAdv. 2019; 5 : eaav8936

CoPhi Editor
the web platform for the ongoing and online collaborative edition of Herculaneum papyri

A familiar environment to work with

CoPhi Editor is a **web environment** for digital scholarly editing based on **Domain Specific Languages** (DSLs).
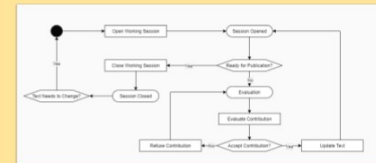
It supports **editorial conventions familiar to papyrologists**, implements a fully **collaborative editing process** of the texts, and checks intra and inter **texts consistency**.

The environment **manages conjectures** and **integrates** a full-fledged **textual search engine**. Finally, it is **highly flexible** and customizable.

Domain Specific Languages

We identified **six dimensions** along which to evaluate the most common textual editing approaches: **Familiarity, Completeness, Consistency, Compactness, Transparency, Actionability**.
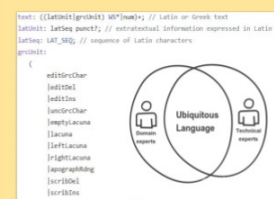
Compared to **Word Processor** (WP), **Complex Graphical User Interfaces** (GUI), and **Structured Text Encoding** (ST), only the DSL approach seems to encompass all of them.
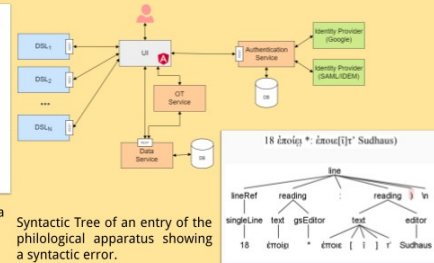
Ongoing review process

CoPhi Editor provides textual scholars with functionalities aimed at **continuously reviewing and commenting** the editorial choices and **conjectures** by putting in place an ongoing **editorial workflow**.

CoPhi Editor Technologies

Microservice Architecture

Context Free Grammars description for a DSL of the philological domain

Syntactic Tree of an entry of the philological apparatus showing a syntactic error.

Contact
Rosanna Malafronte
Dipartimento di Filologia, Letteratura e Linguistica,
Università di Pisa, Pisa, Italy
rosanna.malafronte@phd.unipi.it