Cambridge University Press & Assessment 978-1-009-53297-6 — Infrared Spectroscopy of Archaeological Sediments Michael B. Toffolo Frontmatter <u>More Information</u>

Cambridge Elements⁼

Elements in Current Archaeological Tools and Techniques

edited by Hans Barnard Cotsen Institute of Archaeology Willeke Wendrich Polytechnic University of Turin

INFRARED SPECTROSCOPY OF ARCHAEOLOGICAL SEDIMENTS

Michael B. Toffolo Spanish National Research Centre for Human Evolution (CENIEH)





Cambridge University Press & Assessment 978-1-009-53297-6 — Infrared Spectroscopy of Archaeological Sediments Michael B. Toffolo Frontmatter <u>More Information</u>



Shaftesbury Road, Cambridge CB2 8EA, United Kingdom

One Liberty Plaza, 20th Floor, New York, NY 10006, USA

477 Williamstown Road, Port Melbourne, VIC 3207, Australia

314–321, 3rd Floor, Plot 3, Splendor Forum, Jasola District Centre, New Delhi – 110025, India

103 Penang Road, #05–06/07, Visioncrest Commercial, Singapore 238467

Cambridge University Press is part of Cambridge University Press & Assessment, a department of the University of Cambridge.

We share the University's mission to contribute to society through the pursuit of education, learning and research at the highest international levels of excellence.

www.cambridge.org Information on this title: www.cambridge.org/9781009532976

DOI: 10.1017/9781009387590

© Michael B. Toffolo 2025

This publication is in copyright. Subject to statutory exception and to the provisions of relevant collective licensing agreements, with the exception of the Creative Commons version the link for which is provided below, no reproduction of any part may take place without the written permission of Cambridge University Press & Assessment.

An online version of this work is published at doi.org/10.1017/9781009387590 under a Creative Commons Open Access license CC-BY-NC 4.0 which permits re-use, distribution and reproduction in any medium for non-commercial purposes providing appropriate credit to the original work is given and any changes made are indicated. To view a copy of this license visit https://creativecommons.org/licenses/by-nc/4.0

When citing this work, please include a reference to the DOI 10.1017/9781009387590

First published 2025

A catalogue record for this publication is available from the British Library

ISBN 978-1-009-53297-6 Hardback ISBN 978-1-009-38756-9 Paperback ISSN 2632-7031 (online) ISSN 2632-7023 (print)

Additional resources for this publication at www.cambridge.org/Toffolo

Cambridge University Press & Assessment has no responsibility for the persistence or accuracy of URLs for external or third-party internet websites referred to in this publication and does not guarantee that any content on such websites is, or will remain, accurate or appropriate.

Infrared Spectroscopy of Archaeological Sediments

Elements in Current Archaeological Tools and Techniques

DOI: 10.1017/9781009387590 First published online: January 2025

Michael B. Toffolo Spanish National Research Centre for Human Evolution (CENIEH)

Author for correspondence: Michael B. Toffolo, michael.toffolo@cenieh.es, michael.toffolo@u-bordeaux-montaigne.fr

Abstract: Infrared spectroscopy is the study of the interaction between infrared radiation and matter. Its application to the characterization of archaeological sedimentary contexts has produced invaluable insights into the archaeological record and past human activities. This Element aims at providing a practical guide to infrared spectroscopy of archaeological sediments and their contents taken as a dynamic system, in which the different components observed today are the result of multiple formation processes that took place over long timescales. After laying out the history and fundamentals of the discipline, the author proposes a step-by-step methodological framework, both in the field and the laboratory, and guides the reader in the interpretation of the infrared spectra of the main components of archaeological sediments with the aid of selected case studies. This title is also available as Open Access on Cambridge Core.

Keywords: infrared spectroscopy, microarchaeology, geoarchaeology, archaeological science, sediment

© Michael B. Toffolo 2025

ISBNs: 9781009532976 (HB), 9781009387569 (PB), 9781009387590 (OC) ISSNs: 2632-7031 (online), 2632-7023 (print) Cambridge University Press & Assessment 978-1-009-53297-6 — Infrared Spectroscopy of Archaeological Sediments Michael B. Toffolo Frontmatter <u>More Information</u>

Contents

1	Introduction	1
2	Theoretical and Methodological Framework	2
3	Infrared Spectra of the Main Components of Archaeological Sediments	25
4	Applications to Archaeological Sediments and Their Contents	60
5	Concluding Perspective	76
	References	79