

New archaeomagnetic results from an ancient kiln excavated at Chieri, Northern Italy.

Tema, E.^{1,2}, Fantino, F.³, Ferrara, E.⁴, Lo Giudice, A.³, Barelo, F.⁵ Vella, S.⁴,
Gulmini, M.⁶

¹ Dipartimento di Scienze della Terra, Università degli Studi di Torino, via Valperga 35, 10125, Torino, Italy, evdokia.tema@unito.it

² ALP-Alpine Laboratory of Palaeomagnetism, via G.U. Luigi Massa 6, 12016, Peveragno, Italy

³ Dipartimento di Fisica Sperimentale, Università degli Studi di Torino, via Pietro Giuria 1, 10125 Torino, Italy, fantino@to.infn.it, logiudice@to.infn.it

⁴ Istituto Nazionale di Ricerca Metrologica, Strada delle Cacce 91, I-10135 Torino, Italy, e.ferrara@inrim.it

⁵ Soprintendenza per i Beni Archeologici del Piemonte e Museo Antichità Egizie, piazza San Giovanni 2 - 10122 Torino, Italy, federico.barelo@beniculturali.it

⁶ Dipartimento di Chimica, via Pietro Giuria 5, 10125 Torino, Italy, monica.gulmini@unito.it

Rock-magnetic, archaeomagnetic and thermoluminescence investigations have been carried out on a baked clay kiln excavated at Chieri, Northern Italy. Rock magnetic experiments indicate the dominance of a low coercivity magnetic phase, such as magnetite and/or Ti-magnetite as the main carrier of the remanent magnetization. Haematite has been observed only in few samples. Stepwise thermal demagnetization experiments generally show a stable characteristic remanent magnetization (ChRM). In some cases a secondary magnetization (most probably of viscous origin) is also present, but it is easily cancelled during demagnetization procedures. The mean archaeomagnetic direction, calculated from 17 independently oriented samples, was used for dating purposes. The archaeomagnetic age of the kiln was obtained after comparison of the kiln's declination and inclination with the directional reference curves produced by the SHA.DIF.3K European regional geomagnetic field model. Several possible dating intervals result for the last 1000 years calculated at 95 % confidence interval. Taking in consideration the archaeological context of the site, most probably the last use of the kiln occurred around 1535 - 1613 AD. Independent dating of the kiln has been also obtained from a thermoluminescence (TL) study on two brick samples found in the combustion chamber of the kiln and two samples from the kiln's walls. Using the independent date offered by TL dating, the archaeomagnetic direction obtained from the studied kiln has been compared with other available data from Italy and it can be used as reference point in the Italian directional secular variation curve.