

## 大荔人遗址黄土-古土壤剖面岩石磁学性质研究

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## Rock magnetism study on loess-paleosol profile at Dali

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摘要

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### 摘要

自从大荔人化石被发现以来, 其遗址剖面便成为研究热点. 先前的研究主要集中在地层的对比划分与头盖骨年龄的推断方面. 载磁矿物的鉴定及其古气候含义方面的研究却相对较少. 鉴于此, 本文运用热磁分析、饱和等温剩磁和剩磁矫顽力谱分析、频率磁化率分析、热退磁分析等方法, 对大荔人遗址剖面进行了系统的岩石磁学性质研究, 鉴定出其主要载磁矿物为磁铁矿, 磁赤铁矿, 磁畴状态主要是似单畴. 磁铁矿, 赤铁矿是样品中特征剩磁的携带者; 主要起源于成土作用的超顺磁颗粒. 亚铁磁性矿物, 是古土壤样品磁化率增强的主要贡献者; 古土壤中软磁性矿物的含量高于黄土. 样品中磁赤铁矿的含量并不随土壤样品的频率磁化率曲线, 古里雅冰芯氧同位素、细微粒浓度曲线, 岐山五里铺剖面有机质含量曲线在古气候记录方面具有一致性, 都展示出至少从MIS5以来, 气候从冰期到间冰期的变化是渐变的, 反之则表现了突变特征. 上述岩石磁学研究丰富了大荔人遗址剖面研究内容, 为相关课题的深入研究提供了依据.

关键词: 磁性矿物 古气候 频率磁化率 氧同位素 细微粒浓度 碳酸盐碳同位素 有机质

### Abstract:

Rock magnetic investigations of loess-paleosols along a profile at Dali (Shaanxi) had identified maghemite in pseudo-single domain (PSD) states, as well as hematite. Thermal demagnetization characteristic remanent magnetization directions carried by magnetite and hematite. The magnetic susceptibility enhancement of paleosol samples mainly arose from superparamagnetic grains and ferrimagnetic mineral. The magnetic mineral content was higher in paleosol than in loess. The content of maghemite was not high in loess. Stratigraphic variations of the frequency susceptibility correlated well with oxygen isotope curve and microparticle content curve of the Guliya icecore. Organic content curve of Qishan Wulipu had good paleoclimatic record consistency. They all showed that paleoclimate had gradually changed from glacial period to interglacial period since at least MIS5. On the contrary, it changed rapidly from interglacial period to glacial period. The studies above, not only made the magnetic research of Dali profile more abundant, but also supported the study of relevant theme.

Keywords: [Magnetic mineral](#) [Paleoclimate](#) [Frequency susceptibility](#) [Oxygen isotope](#) [Microparticle concentration](#) [Carbonate carbon isotope](#) [Organic](#)

Received 2009-05-16;

Fund:

山西省留学基金(01-28)和挪威国家助学金资助.

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