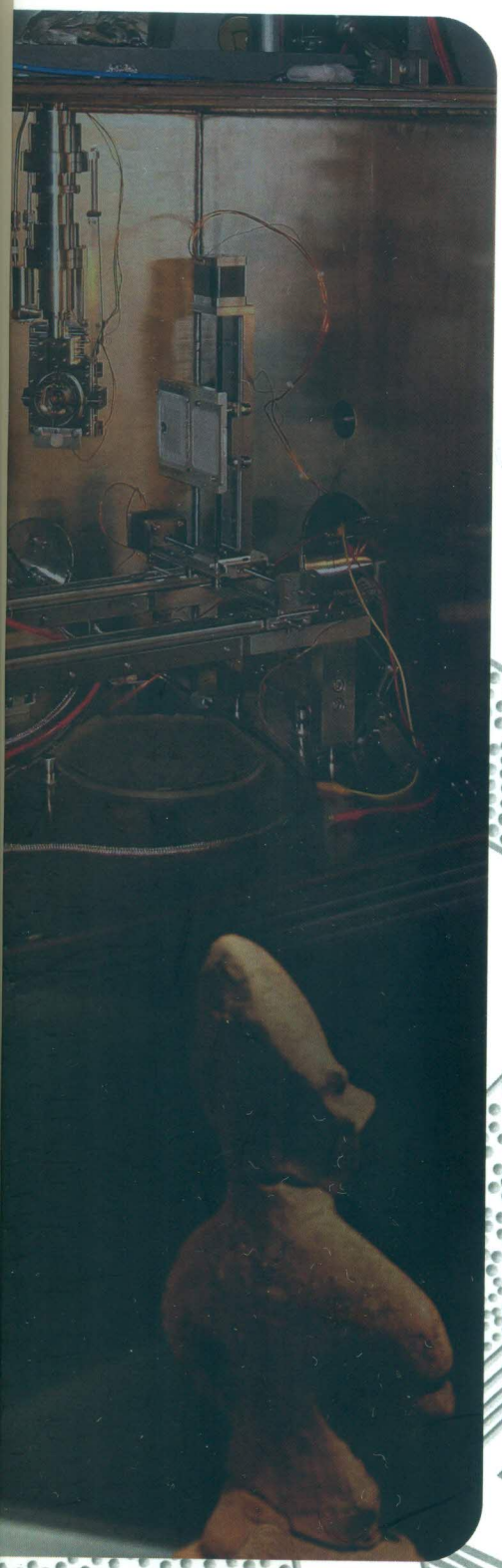

BSA

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BOOK OF ABSTRACTS

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CONTENTS

OR2

Radiocarbon dating of animal bones from Vindija and Mujina Pećina caves – can we have an agreement?

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Keywords: ^{14}C dating, bones, Vnidija Cave, Mujina Pećina Cave.

The project „Last Neanderthals at the Crossroads of Central Europe and the Mediterranean – NECEM" (financed by Croatian Science Foundation, HRZZ-IP-2019-04-6649) aims to gain new data on the adaptations of late Neanderthals in today's Croatia by interdisciplinary methods. Radiocarbon gives a chronological framework providing the samples are not older than about 50000 years.

A total of 16 bone samples from two caves, Vindija (Donja Voća, NW Croatia) and Mujina Pećina cave (Plano, near Kaštela, Dalmatia), were selected for radiocarbon AMS dating at the Ruđer Bošković Institute (RBI) laboratory. Collagen extraction yielded >1% of collagen for 10 samples. From six samples, the collagen yield was lower than 0.5 % and those bones could not have been dated since the low yield (<1%) may produce an underestimated radiocarbon age. For comparison, 12 bone samples were sent to Oxford Radiocarbon Accelerator Unit (ORAU) for radiocarbon dating with an additional step of ultrafiltration (UF) to select collagen fractions having molecules larger than 30 kDa. Four could not have been dated due to low collagen yield (<1 ‰), five were dated despite low yield, and only three were successfully dated. The ^{13}C values of bone samples showed the same range in both RBI and ORAU laboratories, between -18.3 ‰ and -21.8 ‰, typical values for bone collagen. Radiocarbon conventional

ages of these limited number of bone samples were comparable. Much more radiocarbon dating results of the old bones are necessary to obtain more reliable results.

The preliminary results presented here point to the possible obstacles in radiocarbon dating of late Middle Paleolithic samples: bones are not well preserved, the yield of collagen is often low, and the age is close to the limit of the radiocarbon method.