

## “Armida abducts the sleeping Rinaldo”

Neutron autoradiography is capable of revealing different paint layers piled-up during the creation of the painting, whereas different pigments can be represented on separate films due to a contrast variation created by the differences in the half-life times of the isotopes. Thus, in many cases the individual brushstroke applied by the artist is made visible, as well as changes made during the painting process, so-called pentimenti. When investigating paintings that have been reliably authenticated, it is possible to identify the particular style of an artist. By an example - a painting from the French painter Nicolas Poussin (1594–1665), belonging to the Berlin Picture Gallery - the efficiency of neutron autoradiography is demonstrated as a non-destructive method.



Fig. 1: Nicolas Poussin, Replica, “Armida abducts the sleeping Rinaldo”, (c. 1637), Picture Gallery Berlin, 120 x 150 cm<sup>2</sup>, Cat No. 486

The painting shows scenes from the Bible and from classical antiquity. In 1625 the legend of the sorceress Armida and the crusader Rinaldo had inspired Poussin to a painting named “Armida and Rinaldo”, now owned by the Dulwich Picture Gallery in London, that has been identified as an original. In contrast, the painting from the Berlin Picture Gallery “Armida abducts the sleeping Rinaldo” (Fig. 1) shows a different but similar scene, and was listed in the Berlin Gallery's catalogue as a copy.

To clarify the open question of the ascription a neutron radiography investigation was carried out. In Fig. 2, one of the autoradiographs is depicted.



Fig. 2: Nicolas Poussin, "Armida abducts the sleeping Rinaldo", 1st neutron autoradiography assembled from 12 image plate records: in order to investigate the whole picture, two separated irradiations were carried out and finally recomposed.

Already this first record, showing the distribution of the short-lived isotope  $^{56}\text{Mn}$  contained in the brown pigment umber, revealed surprising pentimenti as conceptual changes: additional trees (highlighted in Fig. 2) not present in the final painting. These trees fit in the composition of the painting and contain the same pigments as the other structures. Obviously, these pentimenti are corrections made by the artist himself. A copyist would not have been aware of these changes. Therefore, these pentimenti are strong and important hints that this painting can possibly be attributed to Nicolas Poussin himself.