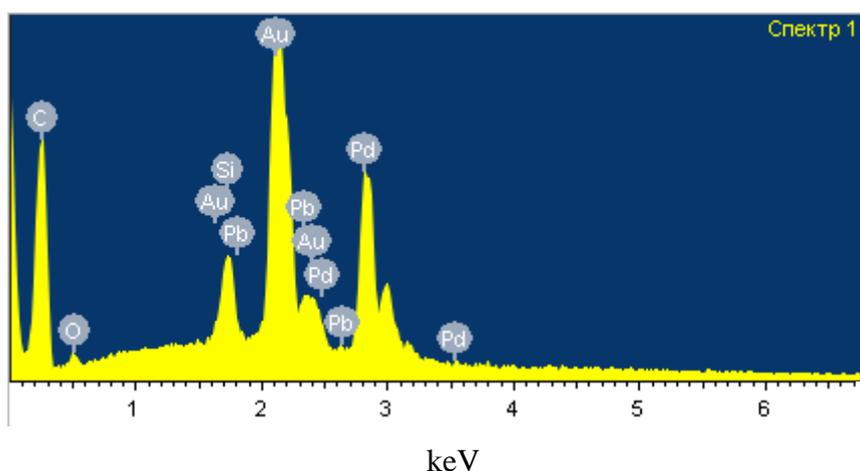


## Electrocatalytic properties of a Pd<sup>0</sup>(Pb) composite synthesized by galvanic displacement: activity towards formic acid oxidation

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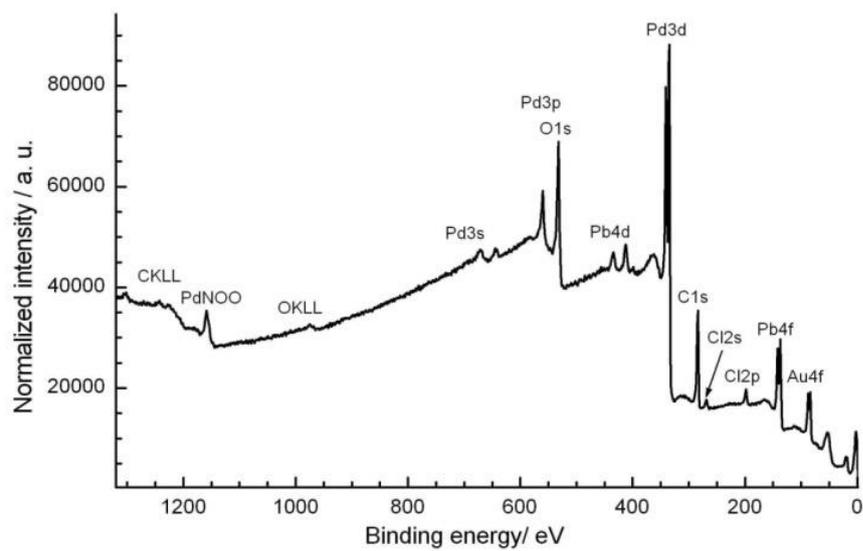
All electrochemical studies were carried out in a three-electrode cell with separate anodic and cathodic compartments at  $20 \pm 1^\circ \text{C}$ . The working solution was stirred by a magnetic stirrer. The solutions were prepared from perchloric acid (Sigma–Aldrich), sulfuric acid (Merck Suprapur),  $\text{PbCO}_3$  of the “puriss p. a.” grade,  $\text{PdCl}_2$  Aldrich,  $\text{HCOOH}$  (Fluka “puriss p. a.”) on water purified in the Milli-Q system (Millipore, USA). To remove dissolved oxygen, the electrolytes were purged with argon (99.99). The electrochemical measurements were carried out by means of IPC-Pro potentiostat-galvanostat developed at the A. N. Frumkin Institute of Physical Chemistry and Electrochemistry (Moscow). The surface morphology of samples was studied by means of a scanning electron microscope JEOL-JSM 6490 LV at the accelerating voltage of 30 kV. The contents of Pb and Pt in the deposits were determined by EDX and AES-ICP methods. In the case of AES-ISP, the deposits were dissolved in aqua regia. To determine the composition of the composite surface layer, we used the XPS method. The XPS spectra were obtained on the spectrometer Axis Ultra DLD (Kratos) with monochromatic  $\text{AlK}\alpha$  radiation and the analyzer transmission energy of 160 eV.

Figure S1 shows the typical EDX spectrum of composite Pd<sup>0</sup>(Pb)/Au. The main text of the article contains the average values of the Pd and Pb contents, which were found from the spectra for 9 points.

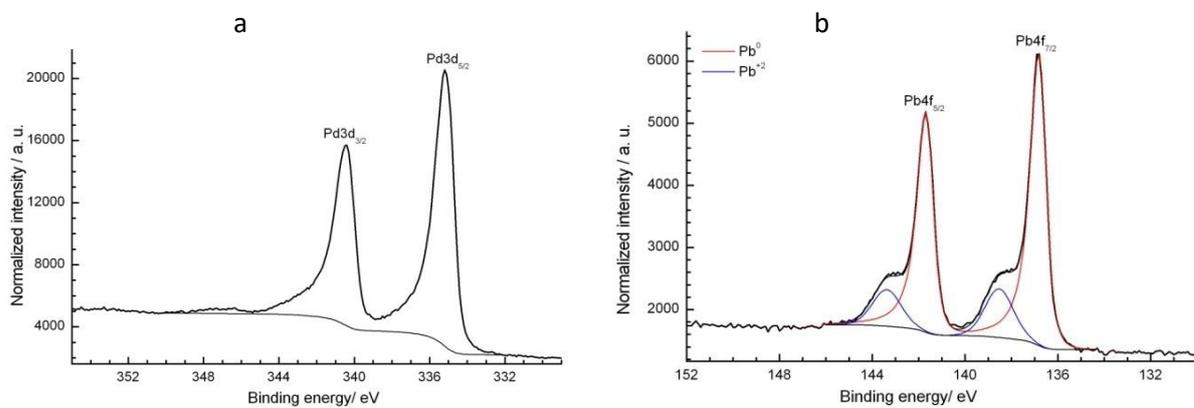


**Figure S1**

Figure S2 shows the overall spectrum for Pd<sup>0</sup>(Pb). Figure S3 shows the XPS spectra for Pd3d electrons (a) and Pb4f electrons (b), from which the content of these elements in the surface layer was determined.



**Figure S2**



**Figure S3**