**List of changes in the revised manuscript and detailed** **responses on the editorial comments**

**Editorial comments:**  
  
1. Unfortunately, there are a few sections of the manuscript that show significant overlap with previously published work. Though there may be a limited number of ways to describe a technique, please use original language throughout the manuscript. Please check the iThenticateReport attached to this email and revise lines 52-55, line 99-108, line 562-572, line 576-580, line 628-638, line 644-657, line 673-683, line 703-712.

**The text of manuscript was checked and the following changes were implemented:**

**lines 52-55:** using dielectric method. The results have shown that the depression of the melting temperature of D2O in the pores of OMC is higher about 15 K relative to the depression of the melting temperature in SBA-15 pores with the comparable size of 5 nm. This is caused by an influence of adsorbate/adsorbent interactions of the studied matrices.

**line 99-108:** Gas adsorption is one of the most important technique of the characterization of porous materials. From many available and used gases and vapours, nitrogen has remained universally properties as adsorptive. An application of user-friendly commercial equipment and data processing, allows to determine nitrogen adsorption–desorption isotherms at 77 K in a wide range of p/p0. As all the computational procedures for pore size analysis, this method have also some limitations. There are some assumptions, such as: an ideal pore shape, rigidity of the structure and model of pores filling, e.g.: capillary condensation or micropore filling. The determined pore widths and volumes should take into account effective values with respect to the adsorption of nitrogen at 77 K.

**line 562-572:** Transmission electron microscopy is a far-reaching analytical technique in the physics, chemistry and biology sciences; TEM finds application in many areas, such as: [cancer research](https://en.wikipedia.org/wiki/Cancer_research), [virology](https://en.wikipedia.org/wiki/Virology) , [materials science](https://en.wikipedia.org/wiki/Materials_science) and also in [nanotechnology](https://en.wikipedia.org/wiki/Nanotechnology) and in [semiconductor](https://en.wikipedia.org/wiki/Semiconductor) research. Transmission electron microscopy is able to image at higher [resolution](https://en.wikipedia.org/wiki/Optical_resolution) than [light microscopy](https://en.wikipedia.org/wiki/Optical_microscope) due to the smaller [de Broglie wavelength](https://en.wikipedia.org/wiki/De_Broglie_wavelength) of electrons. This enables to capture the details thousands of times smaller than a resolvable object seen in a light microscopy. Here, an image comes from an interaction of the electrons with the sample when the beam is transmitted throughout the specimen. Therefore, one of the limitations of the method is that the specimen should be an ultrathin film less than 100 nm of thickness or a suspension applied on a grid. TEM can be improved by a [scanning transmission electron microscope](https://en.wikipedia.org/wiki/Scanning_transmission_electron_microscope) (STEM). It should be possible by an addition of a system combined with suitable detectors, which will raster the beam across the sample to form the image.

**line 576-580:** Potentiometric titration results of SBA-15 material show the shift of pHpzc towards lower pH values evidencing of the existence of some acid centers on the SBA-15 surface. The negatively charged sites increase the van der Waals interactions between the adsorbent/adsorbate molecules in the SBA-15 matrix improving the adsorptive properties of the silica matrix.

**line 628-638:** In Fig. 5(A) and 5(B) we present experimental results of the contact angle for several liquids on silica and carbon substrates; we can see that the systems concerns a wide range of wettabilities. Two of an applied substrates are smooth and planar: silica and carbon surfaces, while the others possess roughness and mesopores. The measured contact angles are discussed in meaning of the microscopic wetting parameter, αw. This parameter is based on a corresponding states rule of the partition function for these systems, and is a measure of the ratio between the liquid–pore walls intermolecular interactions to the interactions of two liquid molecules22-24. Therefore, this parameter measures the wetting properties at the nano- and macro-scales. The αw parameter is shown to be a monotonic function of a contact angle. The results of measurements have found that the values of contact angles for the surfaces with the roughness are higher than those for the smooth planar surfaces, irrespective of type of studied liquids, including non-wetting and well-wetting liquids.

**line 644-657:** used to the determine the contact angles and wettability of small particles in the powders. For a flat solid substrate, many widespread techniques such as: sessile drop method and Wilhelmy plate method can be practiced for measuring contact angles. Using of capillary rise method assumes the fulfillment of four conditions during the process (i.e. Washburn’s equation is derived based on these four assumptions): (1) steady laminar flow, (2) lack of an external pressure, (3) negligible gravitational force and (4) lack of the movement of the liquid at the solid/liquid interface. The hydrostatic pressure is much smaller than the capillary pressure, therefore, the liquid rising upward along the tube is primary fostered by the capillary pressure. The wettability studies of small particles should always take in account the precision and reproducibility of results. To precisely measure contact angle of small particles, it should be consider the pressure increment and the hydrostatic effects in Washburn equation; it allows to more accurately describe the relation between the pressure increment and time.

**line 673-683:** of D2O in SBA-15 and OMC, matrices with the comparable pores size of 5 nm, the dielectric method was used. The results of the electric capacity of water placed in OMC and SBA-15 for the heating process presented in Figure 7(A) and 7(B) respectively, indicate that, the temperature dependence of capacitance C shows a sharp increase at T=260 K, corresponding to the melting of adsorbed D2O inside the pores of SBA-15 and at T=246.1 K, which refers to the melting of adsorbed water inside the pores of OMC. For both systems we observe an increase in the C(T) function at T=276.5 K, which is referred to the melting point of the bulk deuterated water. The observed signals are related with both the bulk and the confined liquid, because the samples studied here are a suspension of filled porous matrices in the excessed liquid. We report that the melting temperature of D2O in SBA-15 pores is depressed relative to the temperature of the bulk by ΔT=Tm,pore − Tm,bulk = - 16.5 K, while for OMC ΔT=- 30.4 K.

**line 703-712:** spectroscopy method is a fact that the method has a rich use in many areas of research as glass transitions, the time-scale molecular motions, whose are in the order of tens of femtoseconds to nanoseconds, so that experiments should be conducted at frequencies in the MHz to THz range. In many problems, such as the decomposition of the obtained spectra or the interpretation and quantitative analysis of the results, the technique resembles more common spectroscopies. Differences lie in the selectivity—the dielectric method investigates the collective fluctuations of molecules having a permanent dipole moment (polar liquids) and having long life time. For example, infrared spectroscopy provides complementary information, although the sensitivity in the direction to collective modes may impede the interpretation of dielectric spectra.

2. The Short Abstract is over 50 word limit.

**The Short Abstract was shorted to 50 words:**

We report the synthesis and characterization of ordered nanoporous carbon with the pore size of 4.6 nm and SBA-15 with the pore size of 5.3 nm. The work describes the surface and textural properties of nanoporous molecular sieves, their wettability, and the melting behavior of D2O confined in the materials.

3. Step 1.1.3: What’s the temperature setting for heating?

**The paragraph was changed following:**

Place the flask in an ultrasonic bath. Heat the solution to 35 °C and stir it until solid polymer is completely dissolved and create homogeneous mixture.

4. 1.2.1: What’s the concentration of sulfuric acid?

**The paragraph was changed following:**

Prepare impregnation solutions (IS1 and IS2) with appropriate proportions of water, 3 M sulfuric acid (VI) and glucose. Glucose plays a role of carbon precursor, and sulfuric acid acts as catalyst.

5. 2.1.3: What’s the temperature setting for heating?

**The paragraph was changed following:**

Place the flask in an ultrasonic bath. Heat the solution to 40 °C and stir it until solid polymer is completely dissolved and create homogeneous mixture (about 30 min).

6. 3.5.1: Please ensure that all text is written in imperative tense. Any text that cannot be written in the imperative tense may be added as a “Note.”

**The paragraph was improved. All text that cannot be written in imperative tense, was putted as a “Note”:**

**Lines: 298-306:** Note: This method is based on the measurement of the mass rise of the liquid, which is penetrating the porous bed, as the function of the time. The main assumption of this method is based on the fact that penetrating liquid is advancing into the porous column and that this column is set of intergranular capillaries with a certain average radius. Thus, every relations derived for single capillary are valid for the layer of the porous powder. In a single vertical capillary the wetting liquid floats against the gravitational forces as a result of the difference of pressures between the liquid and the vapor in the pores (capillary pressure). In this meaning, the penetration of the liquid into the porous bed allows to determine the dynamic advancing contact angle inside the pores.

7. 3.6.1: Please ensure that all text is written in imperative tense. Any text that cannot be written in the imperative tense may be added as a “Note.”

**The paragraph was improved. All text that cannot be written in imperative tense, was putted as a “Note”:**

**Lines: 350-352:** Note:The complex electric permittivity is defined as ε\*=ε`+iε``, where ε`=C/C0 is the real, and ε``= tgδ . ε` is an imaginary part of the permittivity, where C0 is the capacitance in the absence of the dielectric medium and tgδ are the dielectric losses.

8. Figure 1: Please add a short description of the figure in addition to the figure title in the figure legend.

**A short description of the Figure 1 was added in the figure legend:**

The nitrogen isotherms show characteristic hysteresis loops providing an information about the shape and pore size distributions of the studied pores.

9. Figure 3: Please add a short description of the figure in addition to the figure title in the figure legend.

**A short description of the Figure 3 was added in the figure legend:**

The surface charge density dependence of pH show the differences in electrochemical character of both materials; the value of the pzc point evidences about the acid sites existing in the sample.

10. Figure 4: Please add a short description of the figure in addition to the figure title in the figure legend.

**A short description of the Figure 4 was added in the figure legend:**

A quantitative results of EDS analysis allows to describe if the studied surface has the elements related with the functional groups responsible for its reactivity; this is a complementary technique for the potentiometric titration.

11. Figure 5: Please add a short description of the figure in addition to the figure title in the figure legend.

**A short description of the Figure 5 was added in the figure legend:**

The wettability inside the pores referred to the wettability on flat surfaces provides some information about the adsorbate/adsorbent interactions.

12. Figure 6: Please add a short description of the figure in addition to the figure title in the figure legend.

**A short description of the Figure 6 was added in the figure legend:**

An application of Cassie-Baxter model of wettability allows to interpretation of contact angles on rough porous substrates. The calculated from this model f fractions describe the percent contributions of porous wall which are in direct contact with liquid area.

13. Figure 7: Please add a short description of the figure in addition to the figure title in the figure legend.

**A short description of the Figure 7 was added in the figure legend:**

An interpretation of C(T) function allows to localize the temperature of phase transition occurring in the studied system. An increase of C(T) function evidences about the melting point for both: bulk water and confined water inside the pores. The value of the melting point shift is dependent on the host/guest molecular interactions.