

Supplemented material

Effect of Electrode Type on Electrospun Membrane Morphology Using Low-Concentration PVA Solutions

Zane Zelca^{a,*}, Andres Krumme^b, Silvija Kukle^a, Mihkel Viirsalu^b, Laimdota Vilcena^a

^a*Institute of Design technology, Faculty of Materials Science and Applied Chemistry, Riga Technical University, Latvia;*

^b*Laboratory of Polymers and Textile Technology, Department of Materials and Environmental Technology, Tallinn University of Technology, Estonia.*

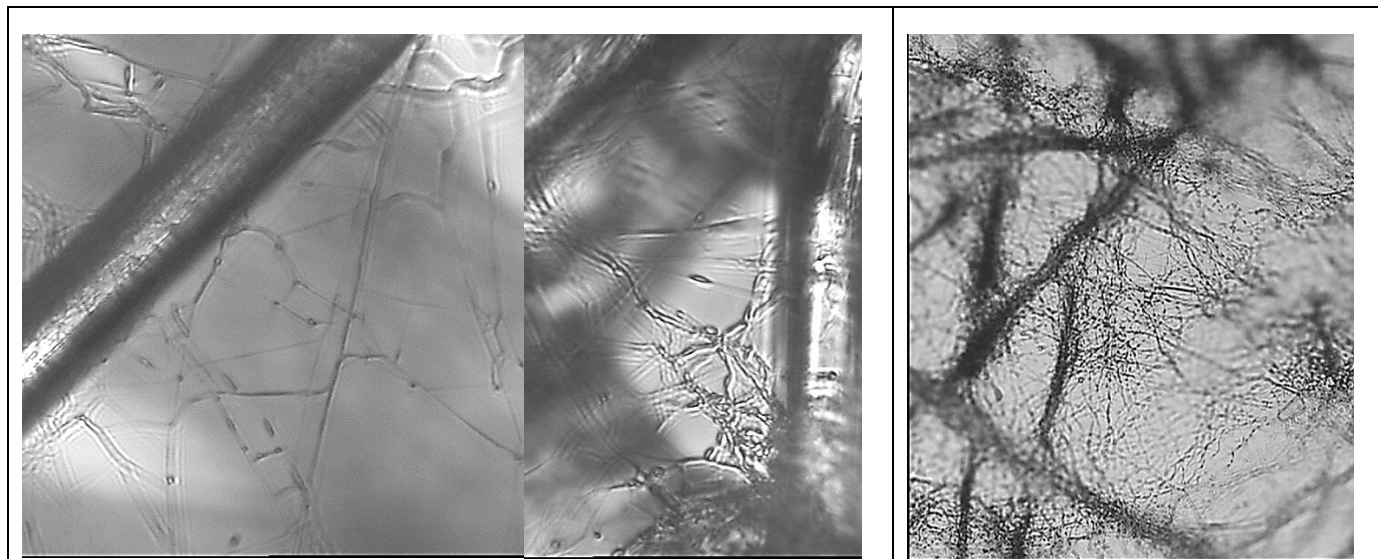
* Corresponding author – Zane.Zelca@rtu.lv, Riga Technical University, Kipsala street 6, Riga, Latvia

Scanning electron microscope SEM Mira Tescan and optical microscope Zeiss Axioskop-2 used for S.1. and S.2. micrographs imaging. Electrospun fiber webs are spun from the solutions described in the table below.

PVA solutions preparation and designations

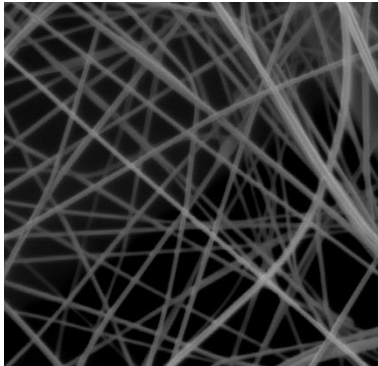
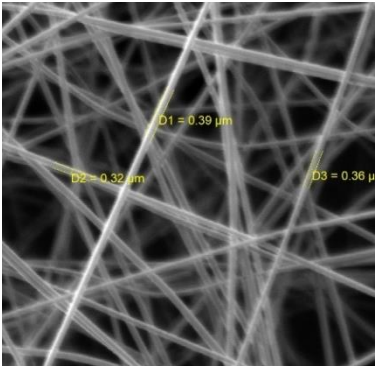
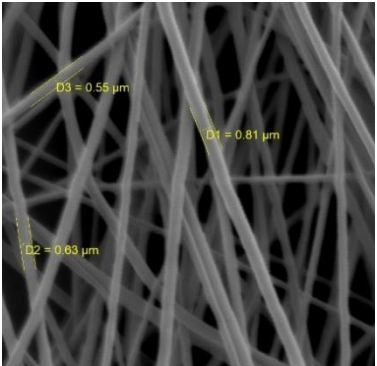
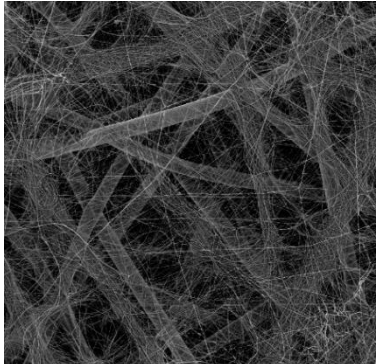
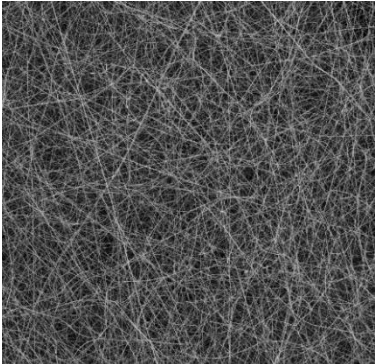
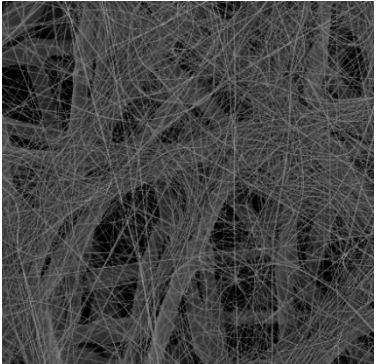
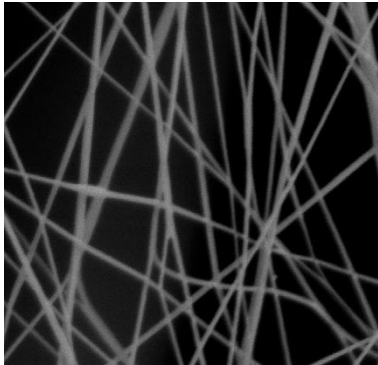
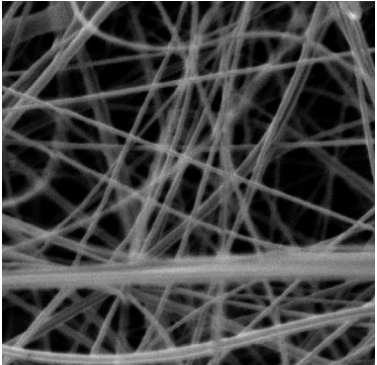
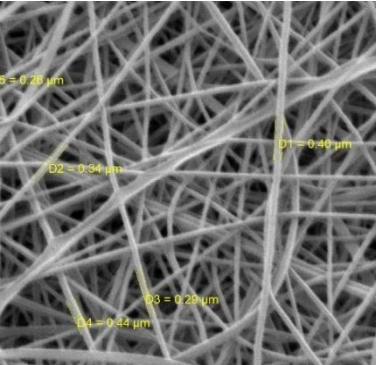
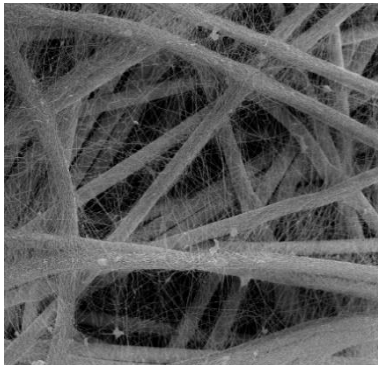
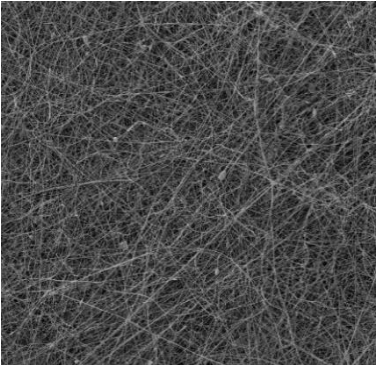
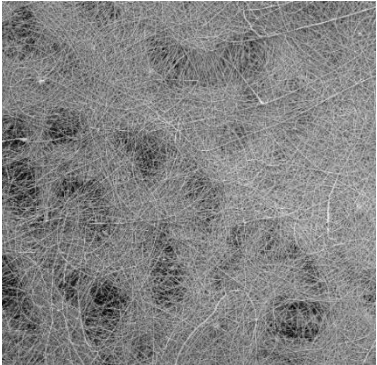
Sample	Molar weight, kDa	PVA content in solution, wt%	Mixing temp., °C	Stirring Time, h
6PVA125	125	6	90-100	2
8PVA125		8		
10PVA125		10		
6PVA130	130	6	75-90	
8PVA130		8		
10PVA130		10		
6PVA145	145	6	90-110	5-13
8PVA145		8		
10PVA145		10		

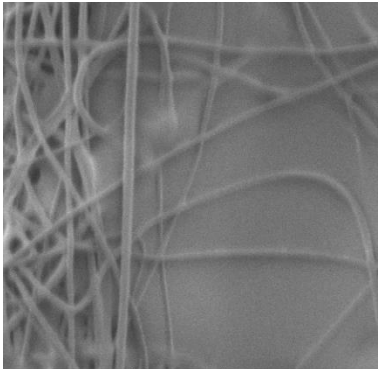
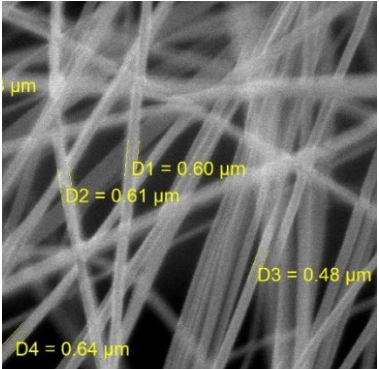
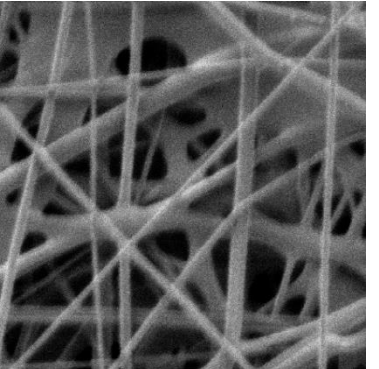
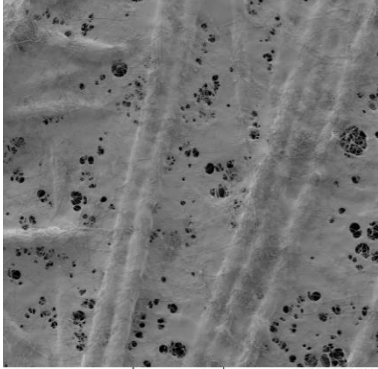
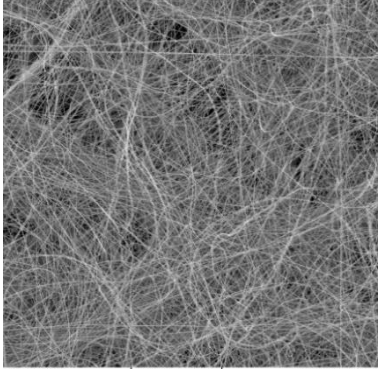
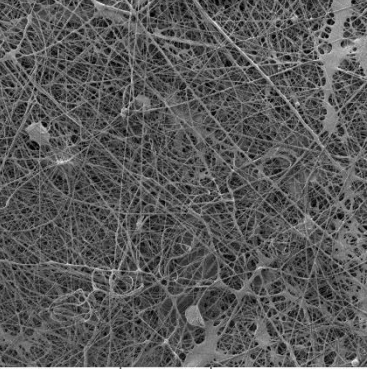
S.1. The micrographs of the optical microscope, x500 and x100



The solution 6PVA130 electrospun by: single wire electrode (left) and needle-type electrode (right)

S.2. Nanoweb morphology depend on concentration and molecular weight, electrospun with cylinder-type electrode

PVA	6 wt%	8 wt%	10 wt%
125.000 g/mol	 <p>Vac: HiVac Date(m/d/y): 04/14/21 5 μm</p> <p>MIRA\\ TESCAN</p>	 <p>Vac: HiVac Date(m/d/y): 04/14/21 5 μm</p> <p>MIRA\\ TESCAN</p>	 <p>Vac: HiVac Date(m/d/y): 04/14/21 5 μm</p> <p>MIRA\\ TESCAN</p>
	 <p>Vac: HiVac Date(m/d/y): 04/14/21 100 μm</p> <p>MIRA\\ TESCAN</p>	 <p>Vac: HiVac Date(m/d/y): 04/12/21 100 μm</p> <p>MIRA\\ TESCAN</p>	 <p>Vac: HiVac Date(m/d/y): 04/14/21 100 μm</p> <p>MIRA\\ TESCAN</p>
130.000 g/mol	 <p>Vac: HiVac Date(m/d/y): 04/29/21 5 μm</p> <p>MIRA\\ TESCAN</p>	 <p>Vac: HiVac Date(m/d/y): 04/29/21 5 μm</p> <p>MIRA\\ TESCAN</p>	 <p>Vac: HiVac Date(m/d/y): 04/29/21 5 μm</p> <p>MIRA\\ TESCAN</p>
	 <p>Vac: HiVac Date(m/d/y): 04/29/21 100 μm</p> <p>MIRA\\ TESCAN</p>	 <p>Vac: HiVac Date(m/d/y): 04/29/21 100 μm</p> <p>MIRA\\ TESCAN</p>	 <p>Vac: HiVac Date(m/d/y): 04/29/21 100 μm</p> <p>MIRA\\ TESCAN</p>

PVA	6 wt%	8 wt%	10 wt%
145.000 g/mol	 <p>Vac: HiVac Date(m/d/y): 04/29/21 5 μm MIRAI TESCAN</p>	 <p>D1 = 0.60 μm D2 = 0.61 μm D3 = 0.48 μm D4 = 0.64 μm</p> <p>Vac: HiVac Date(m/d/y): 04/29/21 5 μm MIRAI TESCAN</p>	 <p>Vac: HiVac Date(m/d/y): 04/29/21 5 μm MIRAI TESCAN</p>
	 <p>Vac: HiVac Date(m/d/y): 04/29/21 100 μm MIRAI TESCAN</p>	 <p>Vac: HiVac Date(m/d/y): 04/29/21 100 μm MIRAI TESCAN</p>	 <p>Vac: HiVac Date(m/d/y): 04/29/21 100 μm MIRAI TESCAN</p>