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JoVE Chemistry

Editorial Board

Dear Editor,

Following your email of 2nd August 2016 and the reviewers` report enclosed therein, please find attached a revision of manuscript 55124\_R1\_070516 in accordance with the suggested changes.

1. Formatting:

-Please format the font size correctly. For some paragraphs, the font is scaled up by 108% (compare the introduction, paragraphs 1, 2, & 4 to paragraph 3).

*We are thankful for this suggestion. As specified by Standard Manuscript Template, we used font 12 pt Calibri throughout the entire document. Currently, font size is scaled by 100%.*

-2.7, 3.9 – Please indicate the steps that are to be repeated for the purification by step number.  
-Once abbreviations have been defined, do not use the entire name of the chemical at subsequent occurrences (see DBU).

*Purifications steps that need to be repeated are now indicated (i.e. for step 2.7, line 145: “Repeat purification step 2.6”, for step 3.9, line 177: “Repeat purification step 3.8”). Corrected - full chemical name for DBU is used only once in the main text (line 115, page 3).*

-References – Please include DOI where available.

*Appropriate DOI numbers are included for all the references in the list.*

2. Please copyedit the manuscript for numerous grammatical errors, some of which are indicated below. Such editing is required prior to acceptance and should be performed by a native English speaker to eliminate awkward phrasing and correct article usage (a, an, the).

-Title – Please delete “the”.  
-Long Abstract – Please break up the first sentence for clarity.

*As suggested by editor, main text was checked for errors and appropriate corrections have been made in the title, long abstract, and throughout the text.*

-1.1 – “having magnetic stirring bar in it” – awkward phrasing

-1.1 – *now reads as “with magnetic stirring bar” (line 93, page 3).*

-1.2, 2.2, 2.3 – “using analytical balances” *is removed for clarity.*

-2.6 – “10 µ” – *corrected to* “10 µm” *(line 142, page 4)*.

-3.5 – “to a room temperature” – *corrected to* “25 oC” *(line 167, page 4)*.

-3.4 – “reached” – *corrected to “reaches”.*

-3.5 – “bar got stuck in it” – *removed.*  
-Line 255 – “Animated model of triazole macroinitiator” – *changed to “molecular model” (line 225, page 6).*  
-Line 316 – “what posed significant experimental challenge for purification and further use” – *removed for clarity.*  
-Line 340 – “the outcome result” – *replaced with “end result” (line 339, page 8).*  
-Line 352 – “, etc.)” – lists should not be ended this way. – *removed for clarity.*

3. Additional detail is required:  
-1.8 – What vacuum pressure is used? – *missing information is added (i.e. 200 mTorr, line 121, page 3).*

-2.3 – How long is the solution stirred? – *2 min. (line 134, page 4).*  
-2.4 – Is this a separate vial? – *indicated in text that this is the same vial (line 136, page 4).*  
-2.5 – Which reaction mixture? From step 2.3 or 2.4? – *indicated in text that reaction mixture was taken from the step 2.4 (line 140, page 4).*  
-3.2 – Is the styrene added to the mixture from step 3.1 or is this a separate vial as indicated? – *from step 3.1 (line 157, page 4).*

-3.3 – Which vials is this added to? – *from step 3.2 (line 159, page 4).*  
-4.4 – What volume of solution is added to the wafer? – *200 µL (line 195, page 5).*  
-Please include a citation for how to perform AFM as insufficient detail is provided to replicate the experiment. – *citations are already included (i.e. references 22, 23).*  
-Please add a step for SEM, which is discussed in the abstracts and introduction, but not included in the protocol. A citation can be included in lieu of detail, and this step does not need to be highlighted for filming. – *experimental details for SEM acquisition are given in the ref. 23. Please see lines 207, 208 – “Note: experimental details for SEM specimens preparation and images acquisition are discussed earlier.23”*  
4. Discussion: Please include independent citations when discussing significance of the technique.  
– *As requested by Editor, independent citations have been included in discussion section (please see lines 347-351, pages 8, 9).*

**Reviewers' comments:**  
**Reviewer #1:**  
1) Some description should be improved or modified.  
a) "Polycarbodiimide-g-polystyrene copolymers to introduce polystyrene moieties" in Abstract: Polycarbodiimide-g-polystyrene can not be further modified with polystyrene moieties.

*As requested by Reviewer 1, this sentence in Long Abstract was rephrased. Now reads as “Polycarbodiimide-g-polystyrene copolymers (PS-PCDs) were prepared by combination of synthetic methods including coordination-insertion polymerization, CuAAC “click” chemistry, and atom transfer radical polymerization (ATRP).”Lines 43-46, pages 1, 2.*

b) "So far, a large variety of demonstrating unique properties helical scaffolds6-9 and based on them multiple-type supramolecular architectures" in Line 64 and 65 (page 2).

*Changed to “So far, numerous helical scaffolds,6-9 as well as their secondary structure motifs, have been successfully exploited to achieve promising results both in the field of physical engineering10-12 and in biological applications13,14”, lines 63-65, page 2.*

c) "a structure of polymer" in Line 82 (page 2) – "polymer structure".

*Corrected to “polymer structure” (lines 79, 80, page 2).*

d) "in the different ratio" in Line 99 (page 3) → "at the different ratio".

*Changed to “at the different ratio” (line 97, page 3).*

e) "Cu(I)I catalyst" in Line 135 (page 4).

*Corrected to “Cu(I) iodine catalyst” (line 133, page 4).*

f) The description of synthesis protocol is too detailed.

*Respectfully disagree with Reviewer`s opinion. Authors must provide as much as possible detailed explanation about their experiment to ensure its reproducibility. Moreover, in previous version we were asked by Editor to add even more details (e.g. “Please add more details to your protocol steps. Please ensure you answer the “how” question, i.e., how is the step performed?”* – *quoted from Editorial comments for manuscript JoVE55124, Jun16, 2016).*

g) "a catalyst" in Line 215 (page 5): in fact two catalysts with R and S configuration were used.

*We are thankful for this comment. Indeed, we have used two different forms Ti(IV)-BINOL catalysts (i.e. having R- and S-configuration). Corrected to “catalysts”(line 214, page 5).*

h) "stock solutions dilution" in Line 230 and 231 (page 6) → "diluting stock solutions".

*Corrected to “diluting stock solutions”(lines 230-231, page 6).*

i) As for "spin-coating deposition method combined with AFM-visualization represents a 303 convenient way to reproducibly generate multiple-type morphologies": AFM-visualization can observe but not generate morphologies.

*“AFM-visualization” was removed to avoid ambiguity. Now reads as “In summary, spin-coating deposition method represents a convenient way to reproducibly generate multiple-type morphologies including fiber-like aggregates, ribbons, worm-like structures, fibrillar networks, looped fibers, toroids, and superhelices from either alkyne polycarbodiimides or from their respective PS-derivatives (i.e., polycarbodiimide-g-polystyrenes)”, lines 302-306, pages 7-8.*

2) "Figure 3" in Line 225 (page 6): In JoVE55124-R1 manuscript, Figure 3 was not offered.

*In current version of manuscript, Figure 3 is to display animated cartoon of polycarbodiimide scaffold. We apologize that some cartoons/schemes from the original manuscript have been combined and/or modified.*

3) As for Figure 4 and 5, which solvent was used to obtain different morphologies.

*In both cases solvent was chloroform. Now it is indicated in figures*’ *legends (lines 273 and 278, page 7).*

4) "their respective sizes" in Line 229 (page 6): specify the size to diameter or length.

*These sizes (Figure 5) reflect diameter, but not the length of fibrous aggregated morphologies (line 230, page 6).*

**Reviewer #2:**

1). The authors do not discuss characterization of the polymers through traditional polymer characterization techniques, such as NMR, GPC, etc. It would be useful if the authors described the results of these characterization as a method to verify the synthesis procedure worked.

*ESI sections of both references 22 (Macromolecules,* ***48****, 4088-4103, 2015) and 23 (Polymer,* ***92****, 94-101 , 2016) contain very detailed polymers characterization including 1H NMR and GPC data. To avoid duplication (plagiarism), in current submission this information was not presented (also, there are already eight figures to illustrate the manuscript main text).*

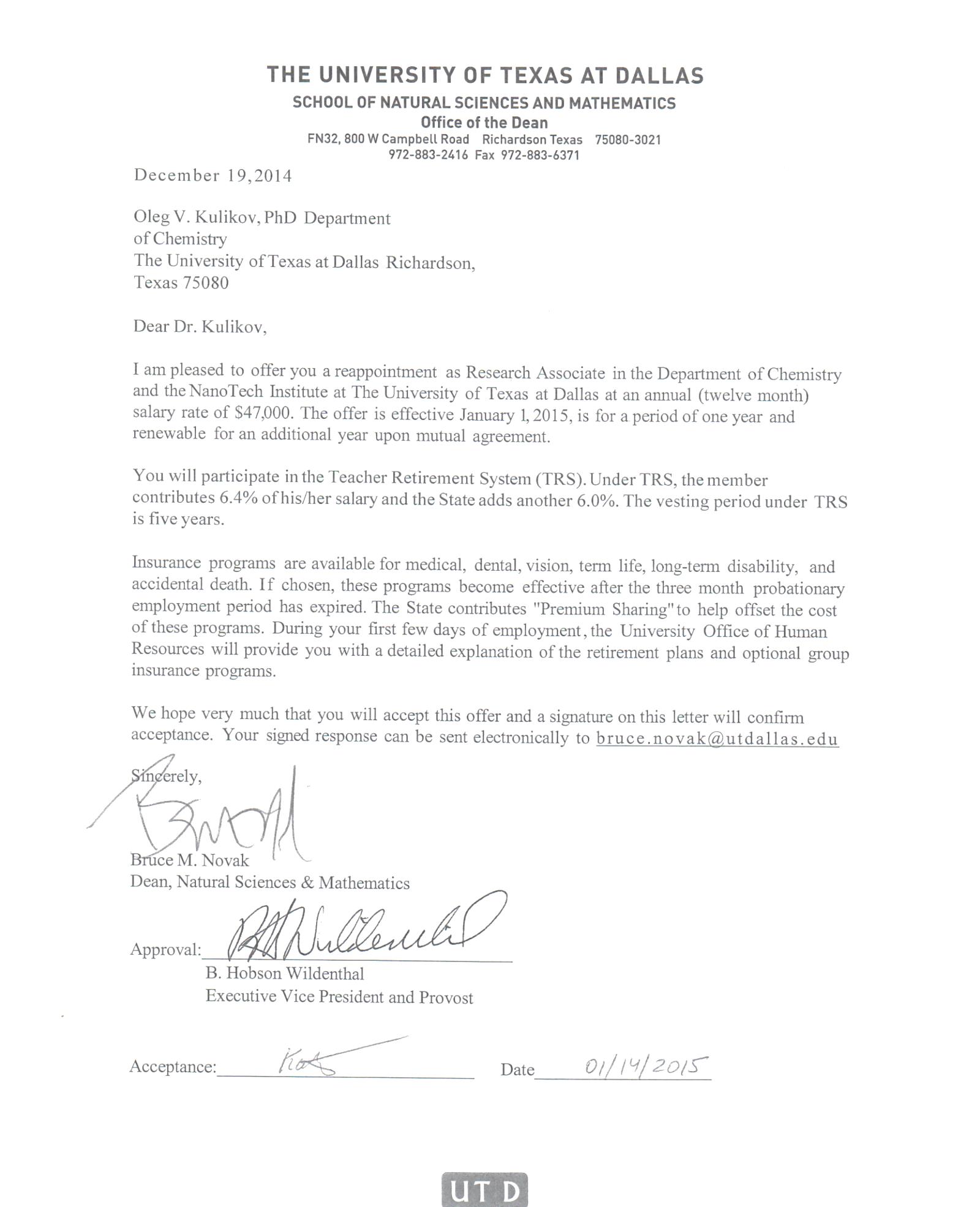
2. Details of the AFM measurement are not provided. AFM can be sensitive to various experimental parameters, and this informaiton should be provided to make it easy for others to reproduce the study. In the materials list, the authors could also provide the types of tips they use in their analysis.

*Details of AFM acquisition are given in the main text (please see lines 203-208, page 5).*

3. The authors should describe the advantages of AFM over other techniques (such as electron microscopy) for studying these polymer assemblies.

*Appropriate discussion of the advantages of AFM-technique is given in the main text (please see lines 344-348, page 8) and SEM analysis was only used to corroborate AFM results (i.e. fibers and spheres formation). In general, electron microscopy techniques (TEM, SEM) require different specimen preparation conditions that can alter the results, so their direct comparison with AFM-findings may be misleading. However, TEM was successfully used to provide evidence for the fibrous morphologies (please see reference 22, Macromolecules,* ***48****, 4088-4103, 2015).*

Once again we thank Reviewers for a critical reading and for their valuable suggestions. We believe that corrections made in manuscript would be helpful for reader`s analysis and understanding. We hope that revised manuscript would be suitable for the publication in JoVE Chemistry.

If there is any other information required, please let me know.