The PhD Thesis of Eng. Krzysztof Rodzeń M.Sc. is concerned with preparation and characterization of organic-inorganic polymer hybrids containing butylstannoxane dodecamer cages. These building blocks were synthesized with i) additional primary or secondary amino groups suitable for polymerization with diglycidylether of bisphenol A; ii) acrylamido groups for copolymerization with acrylates or styrene-based monomers; iii) inert groups for noncovalent incorporation. Prepared hybrids were characterized with focus on mechanical properties, especially shear storage modulus; TEM and X-ray scattering were performed. The degradation of prepared hybrid was studied.

The PhD Thesis consists of 79 pages divided into five main chapters. In addition, six original scientific papers, where M.Sc. Rodzeń is coauthor (in two cases first author), are incorporated in the Thesis. The Thesis is generally well-written; figures and schemes are in good quality.

Comments to the Thesis:

- The Introduction part summarizes basic principles of self-assembly, composites, hybrid materials etc. I completely missed chapter about butylstannoxane dodecamer and use of dodecamer (or similar molecules) in polymer hybrids.
- Wrong numbers in Table 2.
- The introduction of abbreviations (Sn_0, Sn_2, Sn_4…) is not sufficiently explained and makes this part hard to follow. The author himself was confused and replaced names in Figure 10.
- In preparation part, add other important comonomers to the Figure 12. (or move there Figure 15, page 43 (components of epoxy-based polymers) and Figure 16, page 44 (synthesis of vinyl-based hybrids)).
- The storage modulus is used within the Thesis, instead of shear storage modulus used in articles. I prefer the complete term. In Czech version of Summary of Dissertation, the term “reálný modul” is used. I prefer “reálná složka modulu pružnosti”.
- References don’t have consistent format. The journal name abbreviations are used only in some cases; sometimes italic or bold are missing.

The above mentioned comments do not reduce the quality of the PhD Thesis. M.Sc. Rodzeń demonstrated ability of systematic scientific work, and the best proof is five already published and one submitted original articles. I clearly recommend the PhD Thesis of M.Sc. Krzysztof Rodzeń for defense and award a PhD degree from Charles University in Prague.
Questions for the discussion part:

1) Are there other analogues derived from polyhedral oligomeric silsesquioxane? Are they used in composites/hybrid materials preparation? Could you compare them and POSS with your Sn POSS systems?
2) What is the toxicity of Sn POSS and your products?
3) What is the possible use of your materials?