



UMCH-101-515/2021  
August 4, 2021

### **Statement of the Director of the Institute on the Final Report of the Commission 3.2**

I note, that the Commission in our case evaluated six teams, who represent the whole of the Institute of Macromolecular Chemistry (IMC). All six teams were registered for evaluation within FORD (Field of Research and Development) 1.4 Chemical Sciences, detailed FORD 10404 Polymer Science. The evaluation score of the individual teams was mostly high, namely A- (internationally outstanding/excellent), B (internationally competitive), B, A-, B, and B for the individual six teams.

Despite this favorable score, I strongly object to the text delivered as evaluation's Final Report of the Institute of Macromolecular Chemistry as well as I strongly object to the Response of the Commission submitted as a reply to my initial objections listed in the Statement of the Director of the Institute on the Final Report of the Commission 3.2 of June 2, 2021. These initial objections were accepted by the Coordination Board of the Evaluation, Czech Academy of Sciences as justified and transferred to the Commission 3.2 for reassessment. Through the reply of June 22, attached below as Annex 1, the Commission maintained the Final Report in full without any changes. My initial objections summarizing the most important discrepancies are attached below as Annex 2.

The response letter of the Commission rejected all of my initial objections including those pointing to clearly quantitatively wrong statements and to clear errors of fact that regarded the number of employees, students, their age or gender distribution – the response of June 22 (Annex 1) letter claims that such differences are only a matter of issues of perception or differences in opinion. This brings to an unprecedented level the Commission's contempt for the year-long effort of the management of the Institute and its researchers to provide high-quality comprehensive and concise review of the activities of the Institute. Evaluation of one of the teams as "internationally outstanding/excellent" was combined with a statement that "This team is not viable in its current form" together with a recommendation "reduce the support of the team" – since these statements all refer to the same team, together they are nonsensical and devoid of any meaning. The Commission delivered a deplorable report, which suggests that the laboriously prepared documentation was not considered at all. Many statements made in the evaluation report contradict the information submitted by the Institute. A very large number of answers in the evaluation questionnaire are answers that are meaningless within the context of the evaluation – these answers are typically single-word answers "variable", "average", "some". In particular, dozens of answers worded as "commensurate with expectation" are rather related to prior opinions of the members of the evaluation commission (none of whom has notoriety in polymer science despite the fact that the six IMC polymer teams represent one third of the 18 teams evaluated by the Commission 3.2) and do not provide any useful feedback to the management of the Institute.

The statement in the evaluation report that "The Institute is at a phase of managed decline" is a direct insult to the Director of the Institute and the President of the European Polymer Federation. Reports can be critical, but this text is particularly singular in that it is written in hostile language, which clearly indicates undisclosed conflicts of interest. This situation is confirmed in the Response of the Commission (Annex 1), with the statement that the Commission elaborated the report "through personal interactions with eminent Czech scientists". Such approach is a gross breach not only of the binding Methodology of this evaluation, but of the basic ethical principles of any evaluation body at a national or European level.

Moreover, the Commission 3.2 has ignored the rules of the evaluation in other instances, e. g. it openly admitted (Annex 1) to using evidence that “extends beyond the presented documents” and evidence that is related to “collective appreciation of Czech science”.

All these inadequacies took place despite the fact, that we fully cooperated with the Commission and, as requested, provided additional information on the royalties of the most successful patent HemaGel® (tens of millions of CZK, the team was thereafter assessed as “far from the marketplace”), on our gender distribution, on international projects, on employment of foreigners (62 employees from 17 countries at all levels of the research departments including leadership positions – which was subsequently assessed as “lack of awareness of the principle that cultural diversity at all levels have a positive impact”), and lists of top 10 publications of each evaluated team (that the Commission inserted in unchanged identical form as a part of the evaluation report).

In my opinion, this situation completely invalidates the evaluation of the Institute.

It is most regrettable, that through this highly flawed evaluation exercise, an opportunity to provide a meaningful feedback on the activities of the Institute was wasted as well as was great amount of time of many persons preparing and reviewing the documentation.

Jiří Kotek  
IMC, Director

**Dr. Ing. Jiří  
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European Polymer Federation, President

## **Annex 1**

The content of this annex has been removed because it contained internal information.

### Statement of the Director of the Institute on the Final Report of the Commission 3.2

I thank the Commission for the evaluation of the six teams, which in our case represents the whole Institute. I am pleased that the evaluation scoring was mostly positive, namely A- (internationally outstanding/excellent), B (internationally competitive), B, A-, B, and B.

According to the letter ref. no. AVCR 3405/2021 OPV and according to the Article 7d of the Methodology of evaluation of research and professional activity of research-oriented institutes of the Czech Academy of Sciences for the period 2015–2019, I am obliged to make a statement on the adherence of progress of the evaluation to the principles of the methodology. Unfortunately, it is my duty to note, that these principles were not followed, because the Observer – a CAS representative, was not allowed to be present during a closed meeting of the Commission (see the Observer's statement on page 38 of the Final Report of the Commission), whereas the methodology states "The observers – CAS representatives will participate in **all** commissions meetings..." (Methodology, Article 6, 2d).

Regarding the evaluation report, I found several inaccurately or incorrectly interpreted facts. Therefore, in accordance with Article 7 of the methodology, I kindly ask the Coordination Board to reassess the report. The most important discrepancies to which I, as the Director, must object are as follows (the statements in *italics* or in quotation marks are direct citations from the Final Report):

#### Part A: Evaluation of the Institute

##### SWOT analysis, p. 1

*Pyramidal management structure impedes adventure in research.*

The structure is **not** pyramidal, since the 17 independent research departments report directly to the Director as shown in Annex 1.1 of our report. The six research centers do group departments that have similar interests in order to facilitate smooth exchange of ideas and cooperation between individual teams, but the executive power lies with the individual heads of the 17 departments. This was clearly indicated in item 1.3 of the registration form of the Institute for the evaluation that was entitled "Division of the institute into scientific teams for evaluation purposes" and I was requested to indicate, whether this division differed from the official organization structure. I provided the answer "YES" and, as requested, I uploaded the Annex 1.1 "Scheme of organisational structure of the institute" and an explanation.

*Poor age-distribution profile.*

This is a surprising statement since in the previous evaluation the previous Commission had stated "The age distribution of the employed scientists in the institute seems adequate to maintain effectively its future scientific performance. Though, a slight shift to younger PIs and co-workers is desirable to improve the present structure. However, the Committee has been pleased to notice that this is already underway". Moreover, during the last evaluated period, the average age of research employees decreased almost by 1 year to 41.6 years. This is significantly younger than the EU28 average of 46 years (p. 41 in

[https://cdn1.euraxess.org/sites/default/files/policy\\_library/survey\\_on\\_researchers\\_in\\_european\\_higher\\_education\\_institutions.pdf](https://cdn1.euraxess.org/sites/default/files/policy_library/survey_on_researchers_in_european_higher_education_institutions.pdf))

*Notable gender imbalance, especially at senior and leadership positions (also in D2.8 on p. 4).*

I communicated to the Commission at their specific request (email of March 12, 2021) that the Institute employs 34 % women at senior and leadership positions, which we do not consider to be a notable gender imbalance. In addition, at postdoctoral and PhD student positions, there are 69 % of women. There is no gender imbalance in the research departments that have 49.5% female employees. This is a much better situation than the EU average of 33.4 % of women scientists (<https://www.nature.com/articles/d41586-019-00919-y>).

Erroneous statements about gender imbalance appear also in the evaluation of the teams, *e.g.* for the team SUPRAMOL it is stated *Female researchers are invisible at positions of senior leadership* (Final Report, p. 9, D2.8). However, SUPRAMOL is composed of two departments and of the two senior leaders, one is a woman and one is a man, so the gender balance is exactly 50 %. Identical statement appears also for BIOMOL:Tissue (Final Report, p. 13, D2.8), which grouped four departments, and two of them being headed by women, the gender balance is again exactly 50%.

*Introduce flat organisational structure.*

The organizational structure is already flat as explained above (Annex 1.1 of our report).

*Culture of resistance to change*

The Commission did not explain how such resistance to change would be manifested at our Institute, let alone how this resistance to change would become a culture.

*Research activities heavily influenced by established expertise.*

This is difficult to understand, since it implies that the research should be preferentially oriented to areas where the Institute does not have established expertise.

Comments of the Commission, p. 5–6

*The commission noted the inability to halt the progressive decline in the international visibility of the institute (also in D1.1 on p 3).*

The Commission did not provide any example of the progressive decline in international visibility of the institute, on the contrary it acknowledges that **“the issue of publications has been addressed effectively”**. Additionally, this Commission **“applauds”** the Director’s chairmanship of the European Polymer Federation, to which position he was elected by the all-European assembly of national representatives in a competition against two other strong candidates from the Netherlands and Switzerland. This success is an excellent demonstration of the international visibility of the Institute.

*In parallel, members of the commission concurred that there is a significant pool of underutilised scientific talent within the institute.*

The commission did not provide any evidence for or examples of such significant pool of underutilized scientific talent.

*The commission noted that 120 students are distributed among the 17 Departments (5 research centres), 40 of whom are studying at PhD level, and that ca. 40/120 scientific employees are older than 60.*

The correct numbers provided in our report show that during the evaluated period:

- 131 students participated on the activities of the Institute, 79 of them being PhD students (Report 3.1, p. 25).
- the correct number of scientific employees older than 60 is 26 as can be found in the reports 3.4 of individual teams.
- legal retirement age is 65 in the Czech Republic, thus the comment on the number of employees older than 60 is not understood.

*With a few notable exceptions, the contributions of the older members of staff were not apparent.*

This statement is unsubstantiated, since we did not provide to the Commission any information correlating the age and the contribution of individual employees.

*The internal assessment of the quality of research appears to be based on the impact factor of the journal, rather than the direct impact of each of the specified publications.*

The usage of the impact factor as an indicator of the research quality in the internal evaluation was not mentioned nor indicated in our report. On the contrary, the Report 3.1, p. 12) clearly states that “During the evaluation, the group leader presents up to 3 recent achievements and/or papers. ... In addition to scientific outputs as the primary parameter (considering the quality of publications, the extent of individual contribution of each co-author and the originality of the scientific concept), other parameters, such as the research grants obtained by team members or participation in educational programmes (supervision of PhD theses, lectures or courses) are also evaluated. The evaluation is focused on revealing the trends rather than on the performance in a single year.”

*The commission noted the lack of awareness of the well-documented and widely deployed principle that gender balance and cultural diversity at all levels have a positive impact on both the productivity and creativity of research teams.*

The gender balance is commented on above. As to cultural diversity, the remark is not understood, since 62 employees at all levels in the research departments, including senior and leadership positions are foreigners coming from 17 countries of four continents. Moreover, 4 of them have been appointed during the years 2015–2019 as heads of departments (Report 3.1, p. 12).

*The culture of part-time work being the preserve of women in caring situations and of long-serving senior employees who have exceeded retirement age needs to be questioned.*

Part-time work is offered to women as a benefit to help them in an early continuation of their career development after their maternity leave as a part of our gender-supporting plan. Women are free to choose the extent of their part-time or full-time work. The statement that part-time work is the preserve of long-serving senior employees who have exceeded retirement age is unsubstantiated since we did not provide to the Commission with any information on retirement age or part-time work status of individual employees.

*The research portfolio is fragmented, as is exemplified by the initiation of 156 projects over 5 years (more than one project per individual scientist).*

As repeatedly explained in our report and during the presentation, this is due to the specific parameters of the national grant system that we cannot influence and to which we have to adapt in order to secure sufficient financing for our research. This statement is also in sharp contrast with the statements regarding the item D2.4 “Success in receiving grants” that the Commission evaluated for several teams with the word “Some” implying that an even larger number of grants would have led to better evaluation.

*The rapid decline in the activities of one of the research centres in Biomacromolecular and Bioanalogous Systems highlights the need for the restructuring of these centres*

As follows from the evaluation of individual teams, the Commission is probably referring here to BIOMOL: Tissue. Nothing in the report and the presentation indicates a rapid decline in the activities of BIOMOL: Tissue. The perseverance in publishing activities combined with the high number of awarded grant applications, demonstrate the quality of performed research with notable headway of the individual departments of this team.

*Research activities in the field of optoelectronics are several decades out of date, and should be sacrificed to allow a degree of flexibility in the proposed restructuring. Contrary to recommendations made at the previous review cycle, not a single area of research was assessed by the commission to venture into high-risk/high-reward activities or to present evidence of novel, innovative or adventurous research that would help place the institute firmly on the map of excellence in optoelectronics research.*

The evaluation statement “out of date research” contradicts the documented results. Syntheses of new materials based on PSEBS (OPTOEL Report p. 10) are of interest to industrial partners and international community – as can be seen through participations in consortiums of EU projects MAT4BAT and NEWELY. A significant novelty in the area of well-established conducting polymers (polyaniline, polypyrrole) is reflected in the increasing number of international projects and cooperations (OPTOEL Report 3.4 pp. 12-13, 27). New high-risk research areas have been opened, such as polymer memristors and singlet fission, new ideas were developed in the field of conducting polymers for increasing their conductivity and functionality (see OPTOEL Report 3.4 pp. 18, 20-21).

The activities of the OPTOEL followed the recommendations from the previous evaluation that led to a major restructuring of the team (one group has left the team, two of the three current group leaders were newly appointed), the number of subtopics was reduced to better streamline and focus the research (OPTOEL Report pp. 17–20).

The quality of the research in this area is also documented by the fact that two projects on conducting polymers (completed 2019 and 2020, respectively) were evaluated as “excellent” by the Presidium of the Czech Science Foundation (GACR).

*The director’s goal appears to be to increase the share of CAS direct funding as much as possible (he stated that his goal is 75%, which is at best unrealistic considering that the funding that this institute receives from CAS is similar to that of the other institutes this commission assessed). The director gave the impression of seeking to preserve the status quo while reducing the need to pursue competitive external funding.*

The question was not what was the goal, but what share of direct funding would the director consider as optimal. The answer of 75% is consistent with the official statement of the President of the Czech Academy of Sciences Prof. Eva Zažímalová: “Current level of competitive financing became unbearable, ..., the goal of the Academy is to achieve 70 to 80 percent of direct financing, comparably to similar institutions in Germany or France”. (<https://ct24.ceskatelevize.cz/veda/3237176-v-cele-akademie-ved-zustava-zazimalova-zvolila-ji-vetsina-snemu>).

It may be useful to note here that the Institute as an independent legal entity must finance not only its research activities, but also basic operational costs such as building maintenance, asset management, accounting, etc.

*The previous evaluation commission recommended restructuring, which resulted in three departments (not named) being closed and one (not named, but probably Biological Models) being added.*

Closed and newly established departments are **fully named** in report 3.1, p. 19 and in corresponding parts of reports 3.4 of the individual teams.

*The director characterized this process as being “dynamic” but gave no plans for future restructuring. Of the risks specified at the last evaluation (too many topics, too few risky ideas, diminishing international status, not publishing in top journals) only the issue of publications has been addressed effectively.*

I am delighted that the Commission acknowledges that the issue of *publishing in top journals* has been addressed effectively. However, the other risks were also comprehensively reflected (see Report 3. pp. 18-19 and corresponding parts of reports 3.4 of the individual teams and see the response on the visibility of the Institute above).

*The structure of the Institute reflects at best traditional, at worst out-of- date ideas. For instance, essentially no modern materials institute or centre can do without modelling and simulation and the aspect of polymer dynamics is largely neglected.*

Although the Institute does not have a separate research group dealing with modelling and simulations, these activities are naturally integrated in several research groups. Specifically, systematic predictions of polymer conformations, 3D crystal structures, molecular assemblies as well as calculations of the corresponding NMR and IR parameters with the use of quantum-chemistry approaches are conducted in the STRUCTURE center (report STRUCTURE 3.4, pp. 2–7).



Theoretical modelling is also one of the major activities of the OPTOEL team (report OPTOEL 3.4, p. 1).

Main criterion: Societal relevance, p. 2

*H2.3 Current research activities are far removed from the marketplace.*

On the contrary, slide 21 of my presentation showed 60 items of contractual research, 9 contracts for research in collaboration and 4 patent license agreements. Our patent royalties from the marketplace exceeded 40 million CZK in 2015–2019 (slide 23).

*H2.3 Attempts to contribute to topical research on supercapacitors and ORR electrocatalysts fall well short of the internationally leading level.*

Research on materials for ORR electrocatalysis has been started only at the end of the evaluation period and the first results on the level of basic research were published in 2019 in high impacted journal (IF 7.489). The research on materials for supercapacitors has been continued and recent results were published in Advanced Functional Materials (2021, IF 16.836), where they would not accept research of low international quality level.

*D1.2 Mainly as junior partners.*

The analysis of publications on slide 14 of my presentation shows that within the articles that arose from cooperation, the role of IMC is largely dominant (shares marked with "R").

*D2.1 There is an urgent need for significant restructuring. Promising young researchers must be given the freedom to explore new and topical areas of research.*

The statement implies that we do not give freedom to young researchers and it is simply not justified. Almost one third of the projects listed in the Annex 3.2 were obtained by young scientists at the age 40 or less. Young researchers and postdocs are strongly motivated to submit their project proposals, see Report 3.1, pp. 11-15 and corresponding parts of reports 3.4 of the individual teams. In addition, our Report 3.1 also explains (pp. 11-15 ) that young researchers are strongly encouraged to obtain experience abroad, explore new topics, start their own collaborations and return to the Institute (see also the reports 3.4 of the individual teams).

*D2.2 The age-determined hierarchical structure impedes the development of new or topical research activities and suppresses the creativity of young researchers (also in D2.7 on p 4).*

We did not provide any information on the age of the department heads. New and topical activities of young researchers are again documented by 49 projects that they obtained as PIs.

*D2.3 Changes appear to have been made reluctantly and implemented only in part.*

We did not provide any information that would imply that the changes we made would have been made reluctantly.

*D2.9 The Institute is at a phase of managed decline*



The negative comment on Relation of the Institute with regard to the center funded by the National Programme of Sustainability II contradicts the statement in D3.2 - *The Institute supports the ambitious goals of BIOCEV and EATRIS-ERUC as an active member*. It is just the BIOCEV center, which was established with the support of the National Programme of Sustainability II. If the comment concerns the Institute as a whole, then the statement contradicts the acknowledgment that “since last evaluation the issue of publishing in top journals has been addressed effectively” (Final Report, p. 6).

#### D3.1 Significant, mainly at the national level.

On the contrary, the reports 3.4 of the individual teams documented cooperation with numerous universities abroad. For instance, SUPRAMOL reports 42 institutions abroad the majority of which are universities (report p. 12)

Regarding the evaluation of individual teams, selected specific remarks not mentioned in the previous general part have to be made.

#### **Part B: Evaluation of teams**

##### 1. Supramolecular systems and self-association processes

p. 11, Other comments of the Commission:

*Suggested future work involving terbium-161 did not rationalise molecular design in terms of all performance demands for use in the treatment of cancer.*

On the contrary, 161-Terbium is a low-energy low-range beta emitter that can be considered as a “precise surgical blade”. The low energy betas are supported by Auger electrons efficient on nanometer scale, for which thermoresponsive polymers, strongly internalized into the cells are ideal carriers. The originality and potential high-gain of this idea are documented by recent award of a significant funding from European Economic Area – Norway Grants.

##### 2. Biomacromolecular and bioanalogous systems: Tissue engineering

p. 15, Other comments of the Commission:

*The presentation on biomacromolecular and bioanalogous systems conveyed to members of the commission that this once highly productive team is in terminal decline...*

This statement is already addressed above on p.4.

##### 3. Biomacromolecular and bioanalogous systems: Therapeutics

p. 19, Other comments of the Commission:

*... reluctance to venture into internationally leading research activities, as is exemplified by the utilisation of RAFT techniques as a tool rather than as an area of polymer research that is amenable to refinement.*

On the contrary, the team has contributed significantly to refinement of the RAFT technique; among others it has been actively involved in (Report 3.4 Biomol Therapeutics pp. 2–4):

- the detailed description of the mechanism of the RAFT polymerization of methacrylamides (Šubr *et al.*, Macromolecules; <https://doi.org/10.1021/ma400042u>),
- the advanced RAFT process of diblock and star-like polymer synthesis (Koziolová *et al.*, Biomacromolecules, <https://doi.org/10.1021/acs.biomac.8b00973>),
- the design of RAFT-based technique for the scalable polymer synthesis (Chytil P. *et al.*, patent application PV 2019-649, Process for the preparation of polymeric carriers for pH-controlled release of drugs and their conjugates with drugs).

Beyond RAFT polymerization, the team was the first to describe CU-RDRP polymerization technique for HPMa polymerization with a high reaction yield (Raus and Kostka; Polymer Chemistry; DOI: 10.1039/c8py01569d).

#### 4. Polymer materials

p. 23, Other comments of the Commission:

*This team uses very old-fashioned polymer techniques (rheology, mechanical testing, electron microscopy, thermal analysis) as tools for the routine characterisation of polymers. In parallel, the team pursues early stage research on the microwave assisted depolymerisation and recycling of polyurethanes and polycarbonates, which is a commercially important and highly topical field of scientific endeavour. The team also showcased their scientific ventures into the development of self-healing polymers.*

The listed “very old-fashioned” polymer techniques are still crucial for structure-property assessment necessary for development of new materials with controlled end-use properties. Many examples of recent studies published in prestigious journals in the field of polymer materials, in which these “old-fashioned” techniques are the essential characterization tools for newly developed materials can be found in: <https://doi.org/10.1002/adma.201503661>, <https://doi.org/10.1002/adfm.201800560>, <https://doi.org/10.1126/science.aam7588>, etc.).

At the same time, the conventional techniques have been continuously enhanced. As examples can serve cryo-methods for electron microscopy or simultaneous electrical-rheological measurements. Precise description and proper understanding of structure-properties relationships is not possible without high-level mastering of these characterization techniques, such as rheology, mechanical testing, electron microscopy or thermal analysis.

Moreover, without knowledge of material behavior obtained by these methods, especially rheology and mechanical testing, transfer of scientific findings into industrial practice is not feasible. The center combines the characteristics obtained by the “old-fashioned” methods with modern structure sensitive methods in order to get the information on structure-property interrelationships. An example is solid state NMR spectroscopy which is applied in order to get not only information about structure but, primarily, about dynamics of polymer segments. The results are then correlated with mechanical behavior, with respect to fracture resistance assessed from the point of view of fracture mechanics concept.

The similar approach is applied for the synthesis/depolymerization of polymers, where traditional synthetic methods are combined with modern approaches (e.g. microwave-assisted polymerization/degradation) having not only a significant scientific contribution, but also interesting application potential for industrial partners.

5. Structure and dynamics of macromolecules

p. 27, Other comments of the Commission:

*Research efforts on domain-selective NMR crystallography appear limited to data collection and interpretation, rather than to method development for the refinement of the approach.*

This statement cannot be correct in relation to the previous statement in H1.4, p. 24, where the development of methodologies has been evaluated as “The most valuable discoveries and findings in the fields”.

6. Polymers for optoelectronics and energy applications

p. 31, Other comments of the Commission:

*Members of the commission agreed that the activities of this group are too far detached from the state of the art in the field of research...*

This statement is already addressed above on pp. 4-5.

I believe, that using the information provided in Report 3.1 of the Institute and reports 3.4 of the individual teams, I have substantiated sufficiently my objections to the most important of the inaccurately or incorrectly interpreted facts.

Prague, June 2, 2021

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