



Dear colleagues,

In the previous issue, we discussed some important areas for our journal from the viewpoint of future. Now I would like to continue this discussion of challenges and opportunities in these areas within the frameworks of their presentation in “EPS Forum Physics and Society, Physics for Society in the Horizon 2050”.

In the area of quantum many-body systems and emerging phenomena it is necessary to develop the theoretical and experimental approaches for understanding many-body interactions in both “soft” and “hard” condensed matter, atomic and molecular systems. We need a proper description of interactions and interparticle correlations for understanding the system of ground and excited states, as well as modern spectroscopic methods for studying these states, scattering, and collisions. Beyond phenomenology, the adequate description of quantum many-body phenomena will allow understanding the emergent states of matter and new physics associated with them.

The expanse of periodic systems, sheer infinity of possible molecular assemblies, alloys, and compounds, very large variety of forms in which the material can exist (*e.g.*, nano-object, thin film, bulk, crystal, polycrystal, multicrystal, amorphous phase), and the huge spectrum of methods for materials synthesis and characterization signify that this domain has, in fact, scarcely been touched. It provides an endless source of possibilities and innovations.

The discovery of new states of matter will open the way to novel applications in the field of electronics, thermodynamics, sensorics, biology, health, and medicine.

We invite all of you for cooperation and collaboration both as readers and authors, as well as reviewers.

Sincerely yours,
Alexander Belyaev.