

# XC–MD application form (FY2020)

This application form is for the regular categories of XC50 (XC–A, XC–B, XC–MD, and XC–Trial). You cannot use it to apply for the category XC–S.

## 1 Significance and objective of you research

Describe the significance and objective of your research. Clarify the background, scientific goal, and originality of your approach. When you cite references, include (embed) the bibliographic information in the text. This is all the same in the following sections. Example of citations: “There are several TNOs with perihelion distance greater than 45 au that have clearly experienced planetary scattering (Bannister et al. 2017, AJ, 153, 262).”

(The amount of description should not exceed one page)

## 2 Research plan and methods

Summarize your research plan and methods here. Describe the specific outcomes that you expect to achieve during this fiscal year. If there are any new or unique perspectives on your research methods, specify them as well.

(The amount of description should not exceed one page)

### **3 Preparation of computational code**

(§3.1 and §3.2 combined, do not exceed one page.)

#### **3.1 Development and optimization of computational codes**

Describe the current status of the development and optimization of your numerical code. If you are a former user of the computers at CfCA, you need to clarify that the numerical code is expected to run efficiently on this system by showing the scalability of the code. Particularly when you apply for XC-A or XC-S, you need to show the scalability at least up to 1,000 cores.

#### **3.2 Estimate of the amount of computing resources required**

Describe the estimated amount of computing resources required to carry out your proposal (number of nodes, number of CPU cores, amount of memory, time required for one model calculation, total calculation time for all the model calculations, etc.).

(The amount of description should not exceed one page)

## 4 Research results you have achieved so far

If you have had previous experience of using CfCA’s open-use computational facilities, list the publications resulting from this. Note that what should be listed here is the publications of your own research results. Do not bring references that you cited in the sections of research objective or research plan. Also, the applicant’s name should be written in bold in the list of authors. Use “et al.” or other abbreviations as appropriate when there are many authors.

Publications achieved through the use of the CfCA open-use facilities

- **Iwasaki, K.**, Tomida, K., Inoue, T., Inutsuka, S. (2019) The early stage of molecular cloud formation by compression of two-phase atomic gases. *The Astrophysical Journal*, volume 873, 6. (XC30, XC50)
- Takasao, S., Tomida, K., **Iwasaki, K.**, Suzuki, T. K. (2019) Giant protostellar flares: Accretion-driven accumulation and reconnection-driven ejection of magnetic flux in protostars. *The Astrophysical Journal*, volume 878, L10. (XC30, XC50)
- Tsukamoto, Y., **Iwasaki, K.**, et al. (2015) Bimodality of circumstellar disk evolution induced by the hall current. *The Astrophysical Journal*, volume 810, L26. (XC30)

Publications achieved through the use of the facilities in other institutes

- **Iwasaki, K.** (2015) Minimizing dispersive errors in smoothed particle magnetohydrodynamics for strongly magnetized medium. *Journal of Computational Physics*, volume 302, 359. (JCAHPC/Oakforest-PACS)

(The amount of description should not exceed one page)