



LARRY KAUFMAN CALPHAD SCHOLARSHIP COMMITTEE BYLAWS

Purpose Statement: The scholarship is established to recognize the memory of Dr. Larry Kaufman for his contributions to computational thermodynamics and its applications. The scholarship will recognize a materials science undergraduate student and award educational financial assistance. According to the rules established for this scholarship, the committee will determine one recipient per year for the Larry Kaufman CALPHAD Scholarship.

Procedures: The scholarship will be open and available to undergraduate Material Advantage student members. The selection criteria and methodology will be based on established TMS student scholarships.

Student Eligibility Requirements

1. The applicant must be a student member of Material Advantage.
2. Applicants must be undergraduate sophomores or junior.
3. Applicants must be enrolled full time in a metallurgical/materials science engineering program at a qualified college or university.
4. Relatives of members of the funding committee/division are not eligible.
5. Submitted coursework must be relevant to the scholarship for which the student is applying.

Applications will be received by TMS by March 15 using the official TMS Scholarship Application and TMS Scholarship Recommendation Form. Applications for TMS scholarships are to be made by the students themselves. In addition to information requested on the Scholarship Application, applicants must attach an individual statement of 200 words or less, typed, double-spaced, describing career plans, reports on special projects, leadership roles, work experience, and community involvement. This is an opportunity for the applicant to convey specific career plans relating to a particular area of interest. Evidence of academic achievement (including rank in class) is an important factor; therefore, a transcript or facsimile of recent academic record and current GPA is required. Applications should include three official Recommendation Forms from educators or employers. An application is good for one year.

The following judging criteria are to be employed:

Relevance of Coursework/Experience to materials science and engineering focus

Scholarship Application

Academic Achievement

Activities in and out of School, Including Work Experience

Leadership

Personal Profile Statement

Letters of Recommendation

This award committee will review applications and make a selection. The committee may propose one candidate each year for the scholarship. The results of committee deliberations shall be kept confidential until the recipient has been notified by TMS.

Structure: The award committee will be created by TMS and must consist of at least one representative from CALPHAD. The committee shall consist of a chairperson and four members. Care should be exercised to keep adequate representation of industry, academia and the national laboratories in selecting the scholarship committee members. All members, excluding the CALPHAD representative, are to be appointed by the TMS Vice President. Except in special circumstances, the chair shall have already served on the subcommittee for two years. The committee may recommend member candidates to replace those with expiring terms.

Term of Office:

Chair: 1 year

Members: 3 years

TMS views committee membership as a benefit and therefore requires that TMS committee members, except for the CALPHAD representative, be TMS members in good standing. Membership on this committee should be kept confidential.

Meeting Schedule: The subcommittee shall meet at such times as deemed necessary to conduct its business in a timely and effective manner.

Financial Statement: The funding for this scholarship provides for an annual scholarship and limited travel support to the TMS Annual Meeting for the recipient to receive the award. The scholarship will consist of bestowing \$1,000 to one student annually with a \$500 travel stipend to attend TMS Annual Meeting where the scholarship will be awarded.

The Larry Kaufman CALPHAD Scholarship was created using an endowment from CALPHAD Inc. TMS member and CALPHAD Inc. president, Prof. Zi-Kui Liu from Pennsylvania State University, will be the primary contact. The official donor of the monies is CALPHAD, Inc.

Financial arrangements and the operating budget of the committee shall be subject to approval by the Executive Committee of the Board of Directors. In the event of either dissolution or merger of TMS, the funds earmarked or pledged for the awards shall revert to a special account of TMS to be held until such time that suitable arrangements for presentation of similar awards can be negotiated.

About Lawrence Kaufman: Lawrence Kaufman, known universally as Larry, was one of the few scientists of his age of whom it can be said that piloted a research topic from being a gleam in his eyes to a fully-fledged practical discipline within his lifetime.

Larry's scientific career started at the Massachusetts Institute of Technology where his interest in phase equilibria was sparked by association with Morris Cohen and Mats Hillert. After three years at the Lincoln Laboratories he joined ManLabs in 1958 as a research scientist, which exposed him to a wide array of industrial problems whose solutions required multi-component phase equilibria that were simply unavailable. This bottleneck led him to cast about for a solution that would apply not only to the specific problems facing him, but also to any conceivable combination of elements. An original thinker, he not only proposed that the key concept was to establish reliable phase stabilities for the elements, but also set in motion the methods whereby such values could be numerically evaluated.

Phase equilibria became, in his own words, "a labor of love carried out in my spare time". The important ingredient that eventually tipped the scales in favor of his concepts was the increasing availability of computing power, which allowed the coupling large amounts of unrelated data and its conversion into hard copy output of self-consistent phase equilibria.

An important mile-stone was reached in 1970, when Kaufman and Harold Bernstein published the first major text-book devoted to the quantitative computation of phase diagrams. He ran into opposition faced by any new paradigm. The only way to overcome this was to demonstrate the power of this new methodology to a larger and more international audience. He persuaded the US National Science Foundation that a session on the calculation of phase diagrams should be included within a larger workshop on Phase Equilibria scheduled by the National Bureau of Standard at Gaithersburg in 1975. The success of this meeting finally made his views "main-stream" and opened the flood of gates for applications of what is now known universally as the CALPHAD technique. A not-for-profit organization (CALPHAD Inc.) specifically devoted to satisfying increasing demand and understanding of this new technique was founded in the same year. This acronym was also used for the title of a new journal published by Pergammon Press in 1977, with Larry as the Editor-in-Chief.

