



**U.S. Citizenship
and Immigration
Services**

**Non-Precedent Decision of the
Administrative Appeals Office**

In Re: 28748965

Date: AUG. 9, 2023

Appeal of Texas Service Center Decision

Form I-140, Immigrant Petition for Alien Workers (National Interest Waiver)

The Petitioner, a mathematics researcher and professor, seeks classification as a member of the professions holding an advanced degree. Immigration and Nationality Act (the Act) section 203(b)(2), 8 U.S.C. § 1153(b)(2). The Petitioner also seeks a national interest waiver of the job offer requirement that is attached to this EB-2 immigrant classification. *See* section 203(b)(2)(B)(i) of the Act. U.S. Citizenship and Immigration Services (USCIS) may grant this discretionary waiver of the required job offer, and thus of a labor certification, when it is in the national interest to do so.

The Director of the Texas Service Center denied the petition, concluding that the Petitioner qualifies for the EB-2 classification as an advanced degree professional but that the record did not establish that a waiver of the job offer requirement is in the national interest. The matter is now before us on appeal. 8 C.F.R. § 103.3.

The Petitioner bears the burden of proof to demonstrate eligibility by a preponderance of the evidence. *Matter of Chawathe*, 25 I&N Dec. 369, 375-76 (AAO 2010). We review the questions in this matter *de novo*. *Matter of Christo's, Inc.*, 26 I&N Dec. 537, 537 n.2 (AAO 2015). Upon *de novo* review, we will sustain the appeal.¹

I. LAW

To establish eligibility for a national interest waiver, a petitioner must first demonstrate qualification for the underlying EB-2 visa classification, as either an advanced degree professional or an individual of exceptional ability in the sciences, arts, or business. Section 203(b)(2)(B)(i) of the Act.

Once a petitioner demonstrates eligibility as either a member of the professions holding an advanced degree or an individual of exceptional ability, the petitioner must then establish eligibility for a discretionary waiver of the job offer requirement “in the national interest.” Section 203(b)(2)(B)(i) of the Act. While neither statute nor the pertinent regulations define the term “national interest,” *Matter of Dhanasar*, 26 I&N Dec. 884, 889 (AAO 2016), provides the framework for adjudicating national

¹ The Form I-290B, Notice of Appeal or Motion was initially assigned receipt number [redacted]. The appeal was subsequently assigned a new receipt number, [redacted] and the Petitioner notified of this change by correspondence dated June 7, 2023.

interest waiver petitions. *Dhanasar* states that USCIS may, as a matter of discretion,² grant a national interest waiver if the petitioner demonstrates that:

- The proposed endeavor has both substantial merit and national importance;
- The individual is well-positioned to advance their proposed endeavor; and
- On balance, waiving the job offer requirement would benefit the United States.

II. ANALYSIS

The Director found that the Petitioner qualifies for EB-2 classification as an advanced degree professional based upon his Ph.D. in applied and industrial mathematics from the University of [REDACTED] in Kentucky, obtained in 2017.³ The Director also concluded that the Petitioner's proposed endeavor has substantial merit and national importance. However, the Director found that the Petitioner did not demonstrate eligibility for a national interest waiver because he did not establish that he is well-positioned to advance the proposed endeavor or that, on balance, waiving the job offer requirement would benefit the United States. For the reasons discussed below, we conclude that the Petitioner has established eligibility for a national interest waiver under the analytical framework set forth in *Dhanasar*.

A. Whether the Proposed Endeavor Has Substantial Merit and National Importance

The Petitioner proposes to continue his mathematics research as it relates to the development of new solutions for partial differential equations and for terminal problems in backward heat transfer. The record shows that this an essential area of research in the study of pure mathematics and that development in this area has the potential to solve problems which remain ill-posed, in that they do not yet have a solution that remains continuous without using "special regularization methods."

By way of background, [REDACTED] of Mathematics at [REDACTED] University, states in a reference letter for the Petitioner:

A partial differential equation is a mathematical equation involving two or more independent variables, an unknown function, and partial derivatives of the unknown function with respect to the independent variable. . . . Partial differential equations are used to mathematically formulate and help us to resolve physical and other problems involving functions with multiple variables including the propagation of heat or sound, fluid flow, elasticity, electrostatics, and electrodynamics.

The heat equation, a type of partial differential equation, is used to understand and model thermal conductivity, which [REDACTED], Professor and Chair, Department of Mathematics and Statistics at the University [REDACTED] describes as follows:

² See also *Poursina v. USCIS*, 936 F.3d 868 (9th Cir. 2019) (finding USCIS' decision to grant or deny a national interest waiver to be discretionary in nature).

³ The Petitioner also received a master of arts degree in mathematics from the University [REDACTED] in Ohio in 2011 and a master of science degree in mathematics from the [REDACTED] University in 2009.

Thermal conductivity refers to the ability of a material to transfer or conduct heat. . . . Thermal conductivity occurs through molecular agitation and contact. Heat moves along a temperature gradient, from an area of high temperature and high molecular energy to an area with a lower temperature and lower molecular energy. This transfer continues until thermal equilibrium is reached. The rate at which heat is transferred is dependent upon the magnitude of the temperature gradient, and the specific thermal characteristics of the material. Thus, thermal conductivity depends on time, space, materials, and many variables.

As to the Petitioner's specific research with partial differential equations and heat transfer, [redacted]
[redacted] Professor in Applied Mathematics and Scientific Computing at the [redacted]
[redacted] states in his letter of support that:

In general, [the Petitioner's] research has sought to introduce a better approximation problem to regularize thermal conductivity for multiple variables and conditions. . . .

Prior to [the Petitioner's] research, we would say that as a nonlinear equation, the heat equation with a terminal condition is not well-posed. In other words, there is no solution which satisfies the heat condition equation with final data and boundary conditions. Even if a solution were to exist, it will not be continuously dependent on the final data and consequently calculation in numerical simulations will be very difficult. . . .

[The Petitioner's] approximation solution converges with the original solution as the parameter goes to zero making this an excellent method to use in the heat equation with a terminal condition.

The record shows that this research has applications in electronics, materials science, engineering, physics, and other fields in which thermal conductivity is important. For instance, [redacted]
[redacted] Professor of Physics and University Scholar at the University [redacted] states that:

[The Petitioner's] work in mathematics and regularized solutions for backward heat equation has a direct use in exploiting the heat dissipation during ultrafast (pico second to femto second) laser spectroscopy. For example, the demagnetization dynamics and domain wall movement in ferromagnetic material when an ultra-fast laser beam is impinged on a magnetic film can be readily modelled by his methodology. As a material scientist, I can envisage the use of his methodology in understanding and modelling the nucleation and growth of various materials under a temperature gradient.

The substantial merit of an endeavor "may be demonstrated in a range of areas such as business, entrepreneurialism, science, technology, culture, health, or education." *Matter of Dhanasar*, 26 I&N Dec. at 889. To satisfy the national importance requirement, the Petitioner must demonstrate the "potential prospective impact" of the proposed endeavor. *Id.* Based upon the evidence in the record of the potential for the proposed endeavor to advance the understanding of partial differential equations and ill-posed problems of heat transfer in mathematics, and the potential impact to materials science,

electronics, physics, and other fields of research in this area, we agree with the Director that the Petitioner's proposed endeavor has both substantial merit and national importance.

B. Whether the Petitioner Is Well Positioned to Advance the Proposed Endeavor

The second prong shifts the focus from the proposed endeavor to the Petitioner, and whether he is well-positioned to advance it. *Matter of Dhanasar*, 26 I&N Dec. at 890. In finding that the Petitioner did not establish that he is well-positioned to advance the proposed endeavor, the Director found that the Petitioner's evidence of presenting research, publishing, reviewing the work of others, and editing journals was reflective only of work that would be inherent to the profession and was not significant enough to establish that the Petitioner has influenced the field beyond adding to the general pool of knowledge or otherwise establish that he is well-positioned to advance the proposed endeavor. The Director also noted that the record did not indicate that the Petitioner's research has attracted significant attention or funding from U.S. government organizations or major corporate entities.

The record includes the Petitioner's curriculum vitae, academic records, published articles, peer review activity, and documentation of numerous articles that cite to his research findings. As stated above, the Petitioner possesses multiple advanced degrees—a Ph.D. and two master's degrees—in mathematics fields.⁴ In addition, the Petitioner offered reference letters describing his expertise in mathematics, particularly partial differential equations and heat transfer, and his past record of success in the development of novel solutions to ill-posed problems in that field. Several of the letters identify the Petitioner's research as a major step forward and state their opinion that the Petitioner has already made substantial contributions to the field of mathematics. Another letter notes that the Petitioner's research has appeared in mathematics journals with some of the highest impact factors and lowest acceptance rates for their field. As corroborating documentation regarding the significance of his work, the Petitioner provided citation evidence showing that his published work has been cited by independent researchers nationally and internationally, and that the rate at which his work has been cited is high considering the rate of citations typical in mathematics.

The Petitioner is engaged in research related to a foundational area of pure mathematics. As we stated in *Matter of Dhanasar*, “endeavors related to research, pure science, and the furtherance of human knowledge may qualify, whether or not the potential accomplishments in those fields are likely to translate into economic benefits for the United States.” *Id.* at 892. We must consider the totality of the circumstances and whether the record as a whole demonstrates that the Petitioner is well-positioned to advance the proposed endeavor.

We conclude that the Petitioner's experience and expertise in partial differential equations and heat transfer, published articles, citation evidence, record of success, and progress in his field position him well to advance his proposed endeavor. Accordingly, we withdraw the Director's determination as to the second prong of the *Dhanasar* framework and conclude that the Petitioner has satisfied this requirement.

⁴ We consider an advanced degree, particularly a Ph.D., in a STEM field tied to the proposed endeavor and related work furthering a critical and emerging technology or other STEM area important to U.S. competitiveness or national security to be an especially positive factor in assessing the second prong. See generally 6 *USCIS Policy Manual* F.5(D)(2), <https://www.uscis.gov/policy-manual>.

C. Whether, on Balance, Waiving the Job Offer Requirement Would Benefit the United States

The third prong requires the Petitioner to demonstrate that, on balance, it would be beneficial to the United States to waive the requirements of a job offer and thus of a labor certification.⁵ As a mathematics researcher and professor with multiple degrees, the Petitioner possesses considerable experience and expertise relating to partial differential equations and heat transfer. The record also demonstrates the benefits associated with research progress related to the ill-posed problems in backward heat transfer and thermal conductivity. In addition, the Petitioner has documented his past successes in advancing research in this area and publishing influential research findings. Based on the Petitioner's track record of research and the significance of his proposed work to advance U.S. scientific interests, we conclude that he offers contributions of such value that, on balance, they would benefit the United States even if other qualified U.S. workers are available. The Petitioner, therefore, meets the third prong of the *Dhanasar* framework.

III. CONCLUSION

The Petitioner has met the requisite three prongs set forth in the *Dhanasar* analytical framework. We conclude that he has established he is eligible for and otherwise merits a national interest waiver as a matter of discretion.

ORDER: The appeal is sustained.

⁵ When evaluating the third prong, USCIS considers the following combination of facts contained in the record to be a strong positive factor:

- The person possesses an advanced STEM degree, particularly a Ph.D.;
- The person will be engaged in work furthering a critical and emerging technology or other STEM area important to U.S. competitiveness; and
- The person is well positioned to advance the proposed STEM endeavor of national importance.

See generally 6 *USCIS Policy Manual* F.5(D)(2), <https://www.uscis.gov/policy-manual>.