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[Date]

Dr Brijith Thomas

Materials NMR Laboratory
Division of Science, New York University Abu Dhabi
Abu Dhabi, United Arab Emirates

Dear Dr Brijith Thomas,

I am applying for the Post-Doctoral Associate position in the Materials NMR Laboratory.

I will open with the obvious problem so that you can stop reading if it is decisive. **I have no solid-state NMR experience.** No magic-angle spinning, no multinuclear or two-dimensional methods, no NMR crystallography, and no computational chemistry or density functional theory. If the appointment requires an NMR spectroscopist on day one, I am not that person.

I am writing because of one line in your description: structure–property relationships in molecular solids, **porous materials** and **pharmaceuticals**. My doctoral work sat exactly there, approached from the pharmaceutical side. I designed a mesoporous polydopamine-based carrier whose entire performance was decided by structure — pore architecture, interfacial stabilisation at an oil–water boundary, and the surface chemistry that determined what it could hold and when it let go. Two drugs with incompatible solubility had to occupy the same particle and release in a controlled ratio; that is a structure–property problem before it is a biological one.

What I bring to a materials laboratory is the characterisation and the biological end. I work routinely with transmission and scanning electron microscopy, dynamic light scattering and zeta potential, HPLC and UV-visible spectroscopy, and confocal and fluorescence imaging, and I read your requirement of “at least one of” those five areas as met through advanced structural characterisation of materials. I can also do what most materials groups outsource: take a material from synthesis through cell work to a real in vivo result, including ethics approval, dosing, biodistribution and histopathology. The resulting work is published in *Acta Pharmacologica Sinica* 46(12):3314-3326, where I am joint first author.

On the discipline question — you ask for a PhD in Chemistry, Materials Science, Chemical Engineering or Physics, and mine is in Pharmaceuticals. I would not argue that is the same training. I would argue that a laboratory characterising pharmaceutical solids benefits from someone who knows what those solids have to do once they leave the instrument, and that solid-state NMR is a technique I am motivated to learn properly rather than a box I am hoping to tick.

I hold seven peer-reviewed publications attracting 324 citations, including reviews on additive manufacturing in nanoparticulate drug delivery and on 3D printing for oral dosage materials, both of which are materials papers. I also hold one filed Indian patent. I would welcome a conversation, and I would understand entirely if the NMR requirement is not negotiable.

Yours sincerely,

Dr. Dipika Ramdas Kalambhe

Ph.D. Pharmaceuticals, Shanghai Institute of Materia Medica, Chinese Academy of Sciences