MN2S DEPARTMENT
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CNRS Research Engineer (above PhD):

Study and development of a Li^+ self-monitoring medical device to enhance adherence to treatment of bipolar disordered patients

Key words: Medical device conception, engineering, CAD, optics, electronics and chemistry

Positioning of the project:

The research Engineer position is proposed in the frame of the H2020 European Project R-LiNK. The consortium consists of 22 European partners including research institutes, hospitals, clinical investigation center and companies.

Bipolar disorder (BD) is a prevalent mental disorder and a leading cause of suicide. Lithium is the key mood stabilizer for prevention of BD relapse and suicide. Whilst many cases become asymptomatic with lithium treatment, the majority show sub-optimal response. Identifying biomarkers for predicting lithium response would enable personalization of treatment define criteria for stratification of BD cases and further refine the clinical response phenotype.
In fact, 1/3 of patients under lithium treatment show impressive improvements of the mental health. 1/3 show no response to the treatment. For others the poor adherence to treatment may be the cause of an apparent non-response to lithium therapy.
One of the objectives of the proposal is **to develop a self-monitoring medical device used to enhance adherence to treatment and monitor the Li level in saliva. The idea is that, becoming actors of their treatment, patients will increase their adherence to lithium therapy.**

Position description:

3 years CNRS research engineer at the FEMTO-ST Institute (UMR CNRS 6174). A first 1 year contract will be signed followed by a 2 years contract after evaluation of the first year activity.

The candidate will be in charge of the scientific studies concerning optode based lithium detection (including physicochemistry aspects under supervision), laboratory prototype fabrication and experimentations, design-fabrication-testing of an integrated medical device. Preliminary results have already be obtained at FEMTO-ST. Developments will be conducted in collaboration with:

(i) a local SME (Alcym) which will be responsible for the fabrication of 20 medical devices to be used in a pilot clinical. During the 3 years of this position, the candidate will be in close contact with developers at Alcym. The center of gravity of the joint research and development activities will be at FEMTO-ST at the beginning of the project and at ALCYM at the end of the 3 years.

(ii) the Clinical Investigation Center (INSERM CIC 1431) for aspects concerning current medical regulations and their impacts on research and R&D activities.

FEMTO-ST, CIC1431 and Alcym already work together on medical research projects. Members of the CIC1431 periodically work at FEMTO-ST and the person in charge of the project for the CNRS partner holds a double position at FEMTO-ST and at CIC1431.

Salary:

Depending on the experience, up to 2100 € (net salary).

Required qualifications:

- Candidates must hold a PhD in Physics, Engineering or closely-related discipline.
- There are no citizenship restrictions.
- Applicants are expected to be skilled experimentalists with experience in physicochemistry, optics, electronics, CAD.
- Specific experience of medical device fabrication is more than welcome.
- Background biology is warmly recommended.
- Candidate will in direct contact with developers at Alcym and clinical research specialist at CIC1431. Past experience in such collaboration will be appreciated.

The position must be filled by January 8th 2018

Special condition:

FEMTO-ST is a laboratory und restricted access area. Administrative process is long. The chosen person commit herself/himself not to dismiss after acceptation.

Applications must be send to: bruno.wacogne@univ-fcomte.fr

Submission documents:

- a cover letter where you introduce yourself, your past research achievements and your career goals.
- a full CV including undergraduate and postgraduate details and skills related to this position
- details of three academic referees whom we can contact.