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In[678]:= ThermalShockAnalysis = Function[{name, dataIn},
    data = dataIn;
    frequency = 1 / (data[[2, 1]] - data[[1, 1]]);
    data[[All, 2]] = LowpassFilter[data[[All, 2]], 5/frequency];

    timePlot = ListPlot[data, Joined → True, PlotRange → Full, PlotStyle →
        Thickness[0.005], AxesLabel → {"t (segundos)", "Temperatura (°C)"}];
    Export[NotebookDirectory[] <> "Images/ThermalShock-" <>
        name <> "-Time.pdf", timePlot];

    fourier = data;
    fourier[[All, 2]] = fourier[[All, 2]] - Mean[fourier[[All, 2]]];

    fourier[[All, 2]] = Abs[Fourier[fourier[[All, 2]]]];
    fourier[[All, 1]] =
        Table[i, {i, 0, frequency * 2, (2 * frequency) / (Length[data] - 1)}];

    interp = Interpolation[fourier, InterpolationOrder → 10, Method → "Spline"];
    frequencyPlot = Show[
        Plot[interp[ $\omega$ ], { $\omega$ , 0, 10}, PlotRange → Full, Filling → Axis,
            AxesLabel → {"f (Hz)", "Amplitude"}, PlotStyle → Thickness[0.005]]
    ];
    Export[NotebookDirectory[] <>
        "Images/ThermalShock-" <> name <> "-Frequency.pdf", frequencyPlot];
];

ThermalShockAnalysis["Up",
    Import[NotebookDirectory[] <> "../Data/aa.lvm", "TSV"]]
ThermalShockAnalysis["Down",
    Import[NotebookDirectory[] <> "../Data/aa_2.lvm", "TSV"]]

Export[NotebookFileName[EvaluationNotebook[]] <> ".pdf", EvaluationNotebook[]];

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