src/abichromatogram

April 26, 2025

Contents

```
ABIF Chromatogram Generator
=====================

This module provides functionality to generate SVG chromatograms from ABIF trace
↪  files.
It renders the four fluorescence channels with base calls in a visual format that
resembles the output of DNA sequencing instruments.

Example usage:

.. code-block:: nim
  # Generate a chromatogram from a trace file
  abichromatogram input.ab1 -o output.svg

  # Generate a zoomed view of a specific region with downsampling
  abichromatogram input.ab1 -s 500 -e 1000 -d 5
```

1 Imports

abif

2 Types

```
Channel = enum
  A = "A", C = "C", G = "G", T = "T"
```

The four channels used in capillary electrophoresis

```
TraceData = object
  points*: seq[TraceDataPoint] ## Processed trace data points
  baseOrder*: string           ## Order of bases in channels (e.g., "ACGT")
  peaks*: seq[int]             ## Base call peak positions
  sequence*: string            ## Called sequence
  traceLen*: int               ## Total length of trace in data points
  baseColors*: Table[Channel, string] ## Color mapping for each nucleotide base
```

Processed trace data ready for visualization

```
TraceDataPoint = object
  position*: int               ## X position (scan number)
  values*: Table[Channel, int] ## Intensity value for each channel (scaled 0-1000)
```

A single data point in the trace with values for each channel