CLAIMS

1) A method for estimating a first sample (615) of a first subband signal in a first subband of an audio signal; wherein the first subband signal of the audio signal is determined using an analysis filterbank (612) comprising a plurality of analysis filters which provide a plurality of subband signals in a plurality of subbands from the audio signal, respectively, the method comprising
   - determining a model parameter (613) of a signal model;
   - determining a prediction coefficient to be applied to a previous sample (614) of a first decoded subband signal derived from the first subband signal, based on the signal model, based on the model parameter (613) and based on the analysis filterbank (612); wherein a time slot of the previous sample (614) is prior to a time slot of the first sample (615); and
   - determining an estimate of the first sample (615) by applying the prediction coefficient to the previous sample (614);

   wherein
   - determining the prediction coefficient comprises determining the prediction coefficient using a look-up table or an analytical function;
   - the look-up table or the analytical function provide the prediction coefficient as a function of a parameter derived from the model parameter; and
   - the look-up table or the analytical function are pre-determined based on the signal model and based on the analysis filterbank.

2) The method of claim 1, wherein
   - the signal model comprises one or more sinusoidal model components;
   - the model parameter (613) is indicative of a frequency of the one or more sinusoidal model components; and optionally wherein
   - the model parameter (613) is indicative of a fundamental frequency Ω of a multi-sinusoidal signal model;
   - the multi-sinusoidal signal model comprises a periodic signal component;
   - the periodic signal component comprises a plurality of sinusoidal components; and

- the plurality of sinusoidal components have a frequency which is a multiple of the fundamental frequency Ω.

3) The method of any previous claim, wherein determining the model parameter (613) comprises extracting the model parameter (613) from a received bitstream indicative of the model parameter (613) and a prediction error signal.

4) The method of claim 1 or claim 2, wherein
   - determining the model parameter (613) comprises determining the model parameter (613) such that a mean value of a squared prediction error signal is reduced;
   - the prediction error signal is determined based on the difference between the first sample (615) and the estimate of the first sample (615); and optionally wherein the mean value of the squared prediction error signal is determined based on a plurality of succeeding first samples of the first subband signal.

5) The method of any of any previous claim, wherein
   - the model parameter is indicative of a fundamental frequency Ω of a multi-sinusoidal signal model; and
   - determining the prediction coefficient comprises determining a multiple of the fundamental frequency Ω which lies within the first subband.

6) The method of claim 5, wherein determining the prediction coefficient comprises
   - selecting one of a plurality of look-up tables based on the model parameter; and
   - determining the prediction coefficient based on the selected one of the plurality of look-up tables.

7) The method of claim 6, wherein
   - the model parameter is indicative of a periodicity T;
   - the plurality of look-up tables comprises look-up tables for different values of periodicity T;

- the method comprises determining the selected look-up table as the look-up table for the periodicity T indicated by the model parameter; and optionally wherein
- the plurality of look-up tables comprises look-up tables for different values of periodicity T within the range of $[T_{min}, T_{max}]$ at a pre-determined step size ΔT;
- T_{min} is such that for $T < T_{min}$, the audio signal can be modeled using a signal model comprising a single sinusoidal model component; and/or
- T_{max} is such that for $T > T_{max}$, the look-up tables for the periodicities T_{max} to $T_{max} + 1$ correspond to the look-up tables for the periodicities $T_{max} - 1$ to T_{max}.

8) The method of any previous claim, wherein
   - the plurality of subbands have an equal subband spacing; and
   - the first subband is one of the plurality of subbands; and/or
   - the analysis filters of the analysis filterbank are shift-invariant with respect to one another; and/or
   - the analysis filters of the analysis filterbank comprise a common window function; and/or
   - the analysis filters of the analysis filterbank comprise differently modulated versions of the common window function; and/or
   - the common window function is modulated using a cosine function; and/or
   - the common window function has a finite duration *K*; and/or
   - the analysis filters of the analysis filterbank form an orthogonal basis; and/or
   - the analysis filters of the analysis filterbank form an orthonormal basis; and/or
   - the analysis filterbank comprises a cosine modulated filterbank; and/or
   - the analysis filterbank is a critically sampled filterbank; and/or
   - the analysis filterbank comprises an overlapped transform; and/or
   - the analysis filterbank comprises one or more of: an MDCT, a QMF, an ELT transform; and/or
   - the analysis filterbank comprises a modulation structure.

9) A method for estimating a first sample of a first subband signal in a first subband of an audio signal; wherein the first subband signal of the audio signal is determined using an

analysis filterbank comprising a plurality of analysis filters which provide a plurality of subband signals in a plurality of subbands from the audio signal, respectively; wherein the analysis filterbank is a critically sampled filterbank; the method comprising

- determining a prediction mask (203, 205) indicative of a plurality of previous samples in a plurality of prediction mask support subbands; wherein the plurality of prediction mask support subbands comprise at least one of the plurality of subbands different from the first subband;
- determining a plurality of prediction coefficients to be applied to the plurality of previous samples; and
- determining an estimate of the first sample by applying the plurality of prediction coefficients to the plurality of previous samples, respectively.

10) The method of claim 9, wherein the plurality of prediction mask support subbands

- comprise the first subband; and/or
- comprise one or more of the plurality of subbands directly adjacent to the first subband.

11) A method for encoding an audio signal, the method comprising

- determining a plurality of subband signals from the audio signal using an analysis filterbank comprising a plurality of analysis filters;
- estimating samples of the plurality of subband signals using the method of any previous claim, thereby yielding a plurality of estimated subband signals;
- determining samples of a plurality of prediction error subband signals based on corresponding samples of the plurality of subband signals and the samples of the plurality of estimated subband signals;
- quantizing the plurality of prediction error subband signals; and
- generating an encoded audio signal indicative of the plurality of quantized prediction error subband signals and of one or more parameters used for estimating the samples of the plurality of estimated subband signals.

12) A method for decoding an encoded audio signal; wherein the encoded audio signal is indicative of a plurality of quantized prediction error subband signals and of one or more

parameters to be used for estimating samples of a plurality of estimated subband signals; the method comprising

- de-quantizing the plurality of quantized prediction error subband signals, thereby yielding a plurality of de-quantized prediction error subband signals;
- estimating samples of the plurality of estimated subband signals using the method of any one of claims 1 to 10;
- determining samples of a plurality of decoded subband signals based on corresponding samples of the plurality of estimated subband signals and samples of the plurality of de-quantized prediction error subband signals; and
- determining a decoded audio signal from the plurality of decoded subband signals using a synthesis filterbank comprising a plurality of synthesis filters.

13) A system (103, 105) configured to estimate one or more first samples of a first subband signal of an audio signal; wherein the first subband signal of the audio signal is determined using an analysis filterbank comprising a plurality of analysis filters which provide a plurality of subband signals from the audio signal, respectively; wherein the system (103, 105) is configured to estimate the one or more first samples using the method of any one of claims 1 to 10.

14) An audio encoder configured to encode an audio signal, the audio encoder comprising

- an analysis filterbank configured to determine a plurality of subband signals from the audio signal using a plurality of analysis filters;
- a system (103, 105) according to claim 13 configured to estimate samples of the plurality of subband signals, thereby yielding a plurality of estimated subband signals (112);
- a difference unit configured to determine samples of a plurality of prediction error subband signals based on corresponding samples of the plurality of subband signals and of the plurality of estimated subband signals (112);
- a quantizing unit configured to quantize the plurality of prediction error subband signals; and
- a bitstream generation unit configured to generate an encoded audio signal indicative of the plurality of quantized prediction error subband signals and of one or more parameters used for estimating the samples of the plurality of estimated

subband signals.

15) An audio decoder (100) configured to decode an encoded audio signal; wherein the encoded audio signal is indicative of the plurality of quantized prediction error subband signals and one or more parameters used for estimating samples of a plurality of estimated subband signals; wherein the audio decoder (100) comprises

- an inverse quantizer (101) configured to de-quantizing the plurality of quantized prediction error subband signals, thereby yielding a plurality of de-quantized prediction error subband signals (111);
- a system (105, 103) according to claim 13, configured to estimate samples of the plurality of estimated subband signals (112);
- a summing unit configured to determine samples of a plurality of decoded subband signals (113) based on corresponding samples of the plurality of estimated subband signals (112) and based on samples of the plurality of de-quantized prediction error subband signals (111); and
- a synthesis filterbank (102) configured to determine a decoded audio signal (114) from the plurality of decoded subband signals (113) using a plurality of synthesis filters.